CONTENTS

TRADE NAME	MODEL	SET AND FOLDER NO.
Admiral	RC400 Record Changer	104-1
Arvin	4080T (Ch. TE282) Tel. Rec.	104-2
Automatic	D-200	104-3
Buick	980868	104-4
Chevrolet	986388	104-5
Crosley	10-419MU Tel. Rec.	104-6
Meck	EV-760	104-7
Misc:	700FS Record Changer	104-8
RCA Victor	9X651 (Ch. RC-1085), 9X652 (Ch. RC-1085A)	104-9
Silvertone	125 (Ch. 478.257), 9125A (Ch. 478.253) Tel. Rec.	104-10
Sparton	5010, 5011, 5014, 5015, 5056, 5057, 5071, 5072 (Ch. 19TS10, 19TS10A) Tel. Rec.	104-11
Tele-Tone	TV-306, TV-307 (Ch. TY, TZ) Tel. Rec.	104-12
Zenith	G723 (Ch. 7G04)	104-13

The PHOTOFACT Servicer

August 15, 1950 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ Vol. 11, Nos. 103 & 104

"He Who Approves A White Lie Soon Grows Color Blind". (Anon)

PRODUCTION CHANGES

Effective with PHOTOFACT Set 103, we are incorporating a new format of production change notices in PHOTOFACT Folder Sets. Considerable time has been spent in analyzing the requirements for this activity, and it is important for you to know the reasons for handling it as we do.

The production change notice folders are set up in such a manner that it is possible to file them in several different ways, depending upon your preference.

If filed according to the following Items 1 or 2, reference to the production change bulletin can be obtained in the PHOTOFACT Cumulative Index. Since each folder is identified both by set and folder number, as well as by production change bulletin number, in the PHOTOFACT Cumulative Index, this listing will indicate the proper position regardless of the filing method used. If the individual production changes are inserted in the folders to which they refer, the Cumulative Index need not be used to locate them.

1. Since the production change bulletins carry PHOTOFACT Set and Folder number, they may be left in their original position and filed with the PHOTOFACT Set.

2. The production change bulletins are also identified by bulletin numbers so that it is possible to remove them from the set and file them in numerical sequence by bulletin number (i.e., Bulletins Nos. 1, 2, 3, etc.).

3. These bulletins are printed in such a manner that they may be cut apart and filed in the folder to which they refer. The copy will be printed on one side only, unless there are sufficient changes pertaining to the same folder to fill more than one side of the page, in which event both sides will be used. In this case, the entire sheet may be filed intact.

One final word: These production change bulletins will be included as the material is available. The frequency in which they are issued will be dependent upon the supply. Some sets of PHOTOFACT Folders may have several sheets while others may have none.

We have tried to answer the requirements and preferences expressed to us in the past in providing the production change information in this form. We sincerely hope that it will be helpful in your daily work.

TGL - Owners - ! Correction please --

From R. Vanden Brink
Brink's Radio & Television Clinic
29 E. 110th Place
Chicago 28, Ill.

"I have purchased a TGL-1 and find it of ex-

Continue on Page 2

PLEASE --

REGISTER - YOUR - NAME, NOW!

We are planning BIG things for REGULAR PHOTOFACT subscribers. If you haven't registered your name as a member of the HOWARD SAMS INSTITUTE, we urge you to do so now. Simply fill out the blank below and mail as directed --

You'll be glad you did.

Mail this to

HOWARD W. SAMS (Personal)
2201 E. 46th Street
Indianapolis 5, Indiana

I - own - PHOTOFACT Sets _____ to _____
(or) PHOTOFACT Volumes Nos. _____ to _____
My Jobber from whom I buy PHOTOFACTS is

City _____ State _____

Please register my name on your Institute list and send me all available data which is free to members. I have not registered previously.

treme importance. It's the greatest little book of its kind anywhere. I have discovered a flaw in it which I am sure you'll appreciate.

"Under Motorola Model VK-106, you list diagram 107 as correct layout; however, you have to look at it upside-down to make any sense of it, and secondly, where you list the 4th video I. F. as being a 6BA6, it is really a 6AG5. We have repaired a few VK-106's and find a 6AG5 tube in that stage. Maybe we are all wet, but would appreciate hearing from you on this. Thank you."

YOU'RE ABSOLUTELY RIGHT!

In checking your comments, we find that we have used a bottom view of the chassis instead of the top, which, of course, makes the diagram backwards, as you say. The listing of the 6BA6 is in error also.

Thank you so much for calling these errors to our attention.

* * *

WE'LL PAY $5.00 FOR YOUR IDEAS
ON NEW WAYS TO USE
PHOTOFACT FOLDERS

Have you found some novel way of putting your PHOTOFACT Folders to work so you get extra value and help from them? Tell us about it, and if the idea is good enough to pass on to thousands of your fellow PHOTOFACT subscribers, we'll print it in the "Servicer" and send you a crisp $5.00 check.

Here's one from John T. Frye - popular Service Technician writer - who has, for years, written "MAC'S RADIO SERVICE SHOP" - in Radio & Television News. Mr. Frye also has a series "Fundamentals of Radio Servicing" currently running in Radio Electronics. "It took me some time to learn that the sooner you turn to PHOTOFACTS for help on a service job, the better. I refer to those helpful Disassembly Instructions. Some of these modern receivers - especially the 'cute' models - are harder to get into than Fort Knox. After fumbling around outside of one of these for several frustrating minutes, like a hungry monkey trying to get into a coconut, I happened to see in the PHOTOFACTS complete, step-by-step instructions on just how to remove the chassis, speaker, and antenna.

"Since that time, I grab up my PHOTOFACTS just as soon as I encounter a strange set. I estimate that the minutes saved in getting the sets out of their cabinets and onto the service bench, without wasting any time, means a couple of more sets turned out per day".

John T. Frye
1810 Spear Street
Logansport, Indiana

"I write colors of wires on my PHOTOFACT schematics, which helps very much on the next set that comes in for repair".

Luther Howard
Howard Electric Shop
224 South Riverview Drive
Kalamazoo, Michigan

* * *

Got a hint or kink to match these -- some other ingenious way in which you use PHOTOFACT Folders? Send in your ideas - they may be worth $5.00 each. Start 'em coming!

Address your letters to Howard W. Sams - c/o PHOTOFACT Servicer.

FIELD EXPERIENCES

For every service "Field Experience", we issue a certificate good for one PHOTOFACT Folder Set. Awards are issued at the time of publication. Since it is impossible to verify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or the results which will be obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Co., Inc.

Hallicrafters 715

Complaint: Loss of picture and blowing of fuses. After several minutes of operation, the raster would grow smaller and finally completely disappear. By turning the set off and waiting a few minutes, the set could be turned back on and the picture would be normal. After a few minutes, the picture would again disappear. If the receiver was left on, the 3 amp fuse in series with the line would burn out. This condition was intermittent in that sometimes the set operated normally.

Cause: It was found that the above condition existed when the contrast control was set at maximum. At this time the cathode of the video amplifier tube is connected to ground. It was found that the heater in the 12AU7 video amplifier was shorting to the cathode, which of course, shorted out the filament line. This accounted for the slowly disappearing raster as the tube filaments cooled.

In the course of looking for the defect, the 5V4 rectifier tube arced over and burned out. As the tube filaments cooled off, the horizontal oscillator stopped oscillating, which caused excessive current in the horizontal amplifier, causing the rectifier failure.

Remedy: Replace the 12AU7.

Note: You should remember that this condition could exist if there is a tube failure in a circuit where the cathode is returned directly to ground.

Editor's Note: The above field experience submitted by field service section of Howard W. Sams & Co., Inc.

* * *

SENTINEL Model 415CV

Complaint: Weak sound with normal picture and sync.

Cause and Remedy: Normal signal level found on grid of 6T8. The trouble was a shorted 10MFD/25 volt capacitor from diode plate No. to return bus (which is 140 volts above chassis).

SENTINEL Model 413

Complaint: Sound but no picture, no raster.

Cause and Remedy: No high voltage. Red plate of 6BQ6 indicates absence of driver voltage. The saw tooth was found on the oscillator and discharge plates of the 6SN7GT but not on the grid of the 6BQ6. The trouble was found to be an open .001 MFD. coupling capacitor to the grid of this tube.

SENTINEL Model 413

Complaint: Weak sound with normal picture and sync. This was one of the tough ones. There did not seem to be any distortion when the volume was low. When the volume control was turned up, the applied voltage being a sine wave (clipping somewhere). Neither the resistance readings of the transformer windings, nor those of the voice coil or the field winding on the speaker indicated any short or open. The sound was not badly weak, but just not as loud as on other sets, and it had been higher for several weeks.

Remedy: Finally, in a last attempt, the speaker was replaced and the sound was normal again.

RECORDIO Model 6B10
Photofact Set No. 8, Folder No. 27

Complaint: Low volume on all switch positions.

Cause and Remedy: Voltage check immediately showed only 20 volts on plate of 6SQ7. 130 volts reappeared as the C25 audio by-pass was clipped off, and volume returned to normal.

I found these small molded capacitors on plates of audio pre-amplifiers defective in many other makes too. I always check this plate voltage as one of the first things.

Editor's Note: All four above Field Experiences were submitted by:

Boller's Television & Radio Service
311 W. Main Street
Springfield, Ohio

* * *

DELCO Model R-705 Car Radio
Photofact Set No. 42, Folder No. 7

Complaint: The set would play weakly. Automatic tuner would keep sweeping dial both ways until set was shut off. If left on long enough, set would blow fuses.

Remedy: Vibrator, buffer capacitor, etc., checked O. K. After testing for some time trouble was located in relay which opens up motor circuit for the automatic tuning unit when actuated by a strong signal. Relay coil windings showed leakage to relay frame by Ohm-meter test. As relay frame is grounded and relay coil is in B+ circuit, we have in effect a partial short to ground. This relay is

designated as number 95 in Sams' Photofact Set No. 42, Folder 7.

Glen A. Brink
2530 Pine Street
Boulder, Colo.

* * *

1949 CHEVROLET Model 986240
Photofact Set No. 75, Folder No. 5

Complaint: Noisy on rough roads or when jarred. Not caused by bad tubes or components.

Remedy: Pull out coil leads at lugs. Also check for crossed leads near lugs.

Ken Churchill
Cass City Oil and Gas Co.
Cass City, Michigan

* * *

TRAVLER 16-T
Photofact Set No. 86, Folder No. 11

Complaint: Sound O. K., but no picture.

Cause: Switch off and on again and picture appears. Caused by change in value of R94 (from 330K to over 400K).

Remedy: Use 270K, at least 1 Watt resistor.

F. Loewy
Ace Radio Television Service
19 South Third Street
Phoenix, Arizona

* * *

PHILCO Models 50-1400, 50-1401, 50-1402, 50-1403, 50-1404, 50-1406

Complaint: A vertical type of jittering can be observed with high contrast settings.

Cause: This is caused by video affecting the sync.

Remedy: This can be eliminated by placing a 1/2-watt resistor from 12,000 to 15,000 ohms across the 10,000 ohms, 1/2 watt already between the plate of the 6SN7 (sync. separator) and ground. As an alternate, the 10,000 ohms, 1/2 watt, already in the circuit, could be removed and replaced with one of from 5,000 to 7,500 ohms.

J. J. Lee
1287 Fairview Avenue
Colton, Calif.

* * *

ADMIRAL Chassis 19A
Photofact Set No. 59, Folder No. 2

Complaint: Sharply defined black lines appearing on the face of the C. R. tube, full width of tube, and moving from top to bottom of screen. Lines appear only after set has "warmed up".

Cause and Remedy: Check dress of leads in H. V. power supply section, especially blue lead from plate (Pin #5) of 6SN7 (V13B), horizontal oscillator section. Arcing between this lead and blue lead from Pin #7 of C. R. tube, where it is tied to a lug just below the vertical centering control, is the source of the trouble.

James H. Lynch
158 Bigelow Street
Brighton 35, Mass.

Motorola Model 12VT13, Chassis TS23B
Photofact Set No. 92, Folder No. 4

Complaint: No picture or sound. Tubes checked Okay.

Cause: On removing chassis, found selenium rectifier (M1) burned and warped . . also 7.5 - ohm resistor (R90) open.

Remedy: Replace rectifier with type recommended by factory service organization as an improved unit which was used in later production of this receiver.

BENDIX Model 3031
Photofact Set No. 84, Folder No. 4

Complaint: No picture or sound. Tubes checked Okay.

Cause: Removed chassis and found (M2) 15/100 Fusetron open. Checked back though circuit and found (C2C) shorted.

Remedy: Replaced complete filter and cleared trouble.

Editor's Note; Both above experiences were submitted by:

Thomas H. Ellery
Ellery Radio Sales and Service
1661 Oakland Street
St. Clair, Michigan

ADMIRAL
MODEL RC400

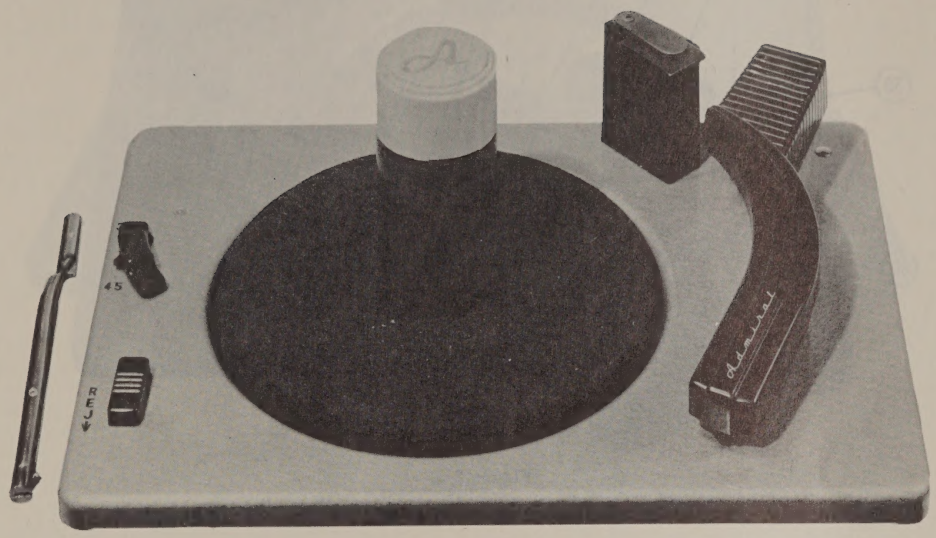

Figure 1

ADMIRAL
MODEL RC400

GENERAL INFORMATION

The Admiral Model RC400 is designed to automatically play a series of ten - 7 inch - 45 RPM records, or ten - 7 inch - 33 RPM records, at a single loading. A wide-diameter, plastic centerpost is used for playing 45 RPM records, and a conventional, metal centerpost for playing 33 RPM records. The last record will be repeated until the changer is turned off. Any record may be rejected, while playing, by pushing the reject knob to the reject position and releasing. The next record on the spindle will then drop to the turntable.

Power supply for the changer is 117 volts, 60 cycles AC.

Manufactured by
Admiral Corporation
3800 Cortland Street - Chicago, Illinois

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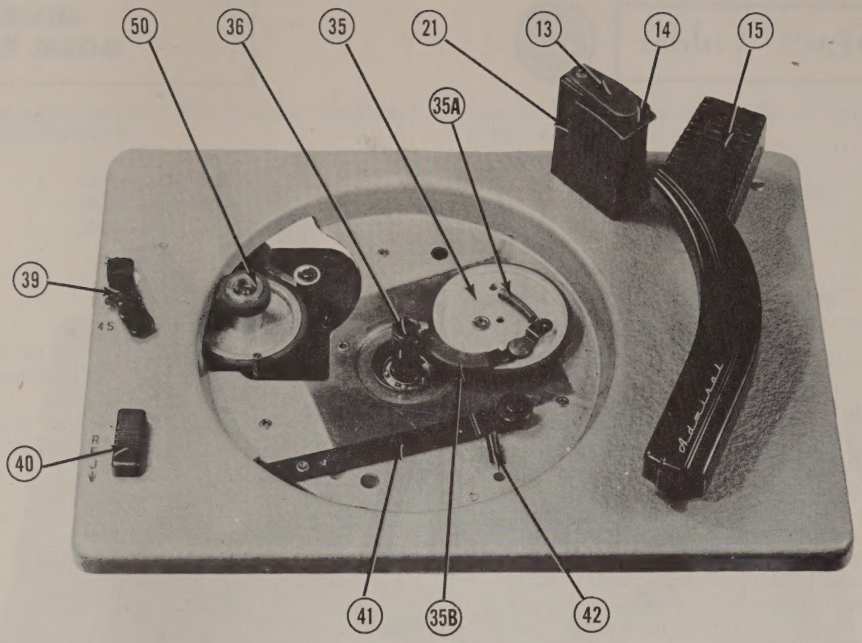


Figure 2

OPERATING INSTRUCTIONS

45 RPM Operation

1. To play 45 RPM records, insert the large-diameter centerpost into the hole in the center of the turntable. While holding the turntable with one hand, rotate the spindle with the other hand (counterclockwise) until the lock-in lugs drop in and lock in the three slots in the turntable. To remove the spindle, hold the turntable and turn the spindle clockwise; then lift up on the spindle.

2. To load 45 RPM records, place as many as ten over the 45 RPM centerpost so that the bottom record rests on the record supports (5).

3. Set the speed change knob (39) so that its indicating arrow points to "45".

4. Start the changer by turning the Radio-Phono switch on the radio to the "Phono-On" position. The changer will now play the entire stack of records and will repeat the last record until the changer is turned off.

5. Turn changer off by turning Radio-Phono switch to the off position. Do not turn the changer off during the change cycle.

6. Move the pickup arm (15) away from the centerpost and remove the records by merely lifting them straight up.

33 RPM Operation

1. Insert the small-diameter (metal) centerpost into the center of the turntable and press it down until it locks in place. To remove this centerpost, merely lift it straight up and out.

2. Place as many as ten records over the centerpost so that the bottom record rests on the ledge on the centerpost and the 33 RPM record support (14).

3. Set the speed change knob (39) so its indicating arrow points to "33". When moving this knob to either position. Make sure that the knob clicks into position.

CAUTION: The speed control has a (neutral) position which disengages the rubber-tired idler wheel (50) from the turntable and drive shaft. This is to prevent flat spots on the idler wheel. The speed-change knob (39) should be in this position if the changer is not going to be used for some time. The neutral position is not marked but can be felt when the knob is halfway between "33" and "45".

4. Start the changer by turning the Radio-Phono switch on the radio to the "Phono-On" position. The changer will now play the entire stack of records and will repeat the last record until the changer is turned off.

5. Turn changer off by turning Radio-Phono switch to the "Off" position. Do not turn the changer off during the change cycle.

6. Move the pickup arm (15) away from the centerpost, and remove the records by merely lifting them straight up.

CHANGE CYCLE
45 RPM OPERATION

The change mechanism is driven through the change cycle by the knurled hub of the turntable (12) rotating the rubber drive wheel (35). Normally, the drive wheel does not touch the knurled hub of the turntable (see Figure 2). As the needle moves into the

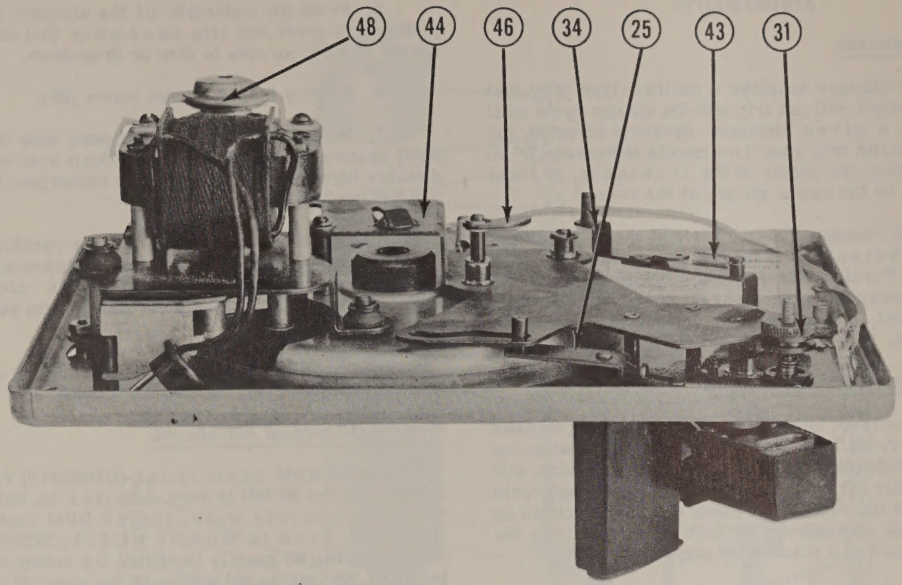


Figure 3

eccentric cut-off groove of the record, the pickup arm lever and trip bracket (34), moving with the pickup arm, touches against the trip bracket (46), pivoting it counterclockwise. The rubber tire then comes in contact with the knurled hub of the turntable, and is rotated in a counterclockwise direction.

The drive-wheel shaft is fastened to the drive bracket (44) and is mounted off center on the drive wheel (35). Therefore, the drive bracket (44) is actuated by this off-center drive wheel mounting, which causes the drive bracket (44) to perform the change cycle. The cycle spring (47) maintains pressure on the drive bracket so that the drive wheel tire is kept in contact with the knurled hub; therefore, as the drive bracket (44) is pivoted by the drive wheel (35), the lift rod (18) is raised by the arm lift incline (44A). This lifts the pickup arm off the record. Stud (44B) contacts the pickup arm lever, which, in turn, moves the pickup arm out clear of the records.

At about the same time, the push-off adjusting shaft (7) rides up the incline (44C) (exploded view) actuating the spindle assembly. This causes the slicer (3) to move out to hold up the remainder of the stack of records, and the record supports to be pulled into the centerpost enough to drop the bottom record to the turntable.

The pickup arm lever control stud (34A), riding against the indexing edge of the index bracket (28), controls the movements of the pickup arm. The index bracket (28) and the set-down spring (27) prevent the pickup arm from moving out too far. (Later in the change cycle, the index bracket (28) and set-down spring (27) control the set-down point).

The drive wheel (35) has now gone through one-half of its rotation, and as it continues to turn, the drive bracket (44) is pulled back to its normal position.

The set-down spring (27), holding the pickup arm lever (34) in contact with the arm control stud (44D), now moves inward, which, in turn, moves the pickup arm in for positioning; this is determined by the indexing notch in the index bracket (28). At this point, the lift rod (18) rides down the incline (44A), thus lowering the pickup arm to the record.

At about the same time, the push-off shaft (7B) returns the spindle assembly to its normal position; i.e., the record supports (5) are forced out and the slicers (3) are pulled into the centerpost. This allows the stack of records on the spindle to drop to the supports (5).

The drive wheel (35) is no longer in contact with the knurled hub, but has been rotated approximately 20 degrees further by the drive wheel bracket (35B), which is held against the knurled hub of the turntable by the drive wheel bracket spring (35A). This completes the change cycle.

33 RPM OPERATION

The change cycle for 33 RPM records is the same as for 45 RPM records, except for change cycle time and record dropping. The records are supported by the offset on the 33 RPM centerpost and the 33 RPM record support (14), therefore, when the drive bracket (44) has pivoted to the position where the pickup arm is clear of the records, the stud on the end of the push-off bracket (25) is moved by the slot (44E). This movement causes the push-off plate (13) to pivot and push off the bottom record. The remaining records are held back by the slide in the top of the centerpost. When drive bracket (44) returns to its normal position, the push-off bracket stud, following slot (44E) in the drive bracket (44), returns the push-off plate to its normal position. This allows the records to drop and rest on the 33 RPM record support (14).

ADJUSTMENTS

Trip Adjustment:

This changer employs a position-type trip; that is, the changer will not trip into the change cycle until it reaches a given distance. Properly adjusted, the changer should trip when the needle is between 2" to 2-3/16" from the center of the truntable, or about halfway in on the spiral groove on the record.

If the changer does not trip at the proper time, it may be adjusted by the trip adjusting screw (33), Figure 4. Turning this screw clockwise moves the trip point away from the center of the record, while turning it out, moves the trip point closer to the centerpoint.

Pickup Arm Height Adjustment:

The correct height of the pickup arm is when the needle rests 1/16" above the baseplate when out of cycle. Adjusted to this spacing, the pickup arm will automatically lift high enough during the change cycle to clear the top record of a stack of ten 7" records on the turntable, but will not lift high enough to strike the bottom record of a stack to be played.

To make an adjustment, be sure the changer is out of cycle and that the pickup arm is clear of the turntable. Adjust the pickup arm lift adjusting nut (31), Figures 3 and 4, until the needle rests 1/16" about the baseplate. Turning the nut (31) clockwise raises the pickup arm, while counterclockwise lowers the arm.

After this adjustment is made, check it by placing a stack of ten records on the turntable. Turn the changer on and reject the records until the records have all been dropped to the turntable. If the needle does not clear the top record, or hits the bottom of a record on the spindle, then a compromise adjustment should be made; that is, raise the arm slightly to make the arm lift higher, or lower the arm slightly to prevent it from striking the bottom record.

Set-Down Adjustment:

When the pickup arm is properly adjusted, the needle point will set down between 3-5/16" and 3-3/8" from the center of the turntable, or 2-9/16" and 2-5/8 from the near side of the 45 RPM centerpost. Making this adjustment, for 45 RPM records, automatically provides correct set down for 33 RPM records.

If the set-down point is not correct, make the following adjustment:

1. Insert the 45 RPM centerpost.

2. Set the speed-change knob (39) to "45" position.

3. Move the reject knob (40) to the reject position, and then rotate the turntable clockwise until the pickup arm has stopped moving inward and starts moving down-ward.

4. Insert a #6 Allen wrench into the Allen set screw (26) of the pivot collar (23) (exploded view). Do not loosen the screw.

5. From the underside of the changer, hold the pickup arm lever and trip assembly (34) so that it cannot move from side to side or drop down.

6. Slightly loosen the set screw (26).

7. Place a ruler against the near side of the 45 RPM centerpost, and move the pickup arm until the distance between the needle and the centerpost is from 2-9/16" to 2-5/8".

8. Tighten the set screw, being careful not to move the pickup arm or the lever and trip bracket (34). Make sure there is approximately .010 clearance between pivot collar (23) and the pickup arm stand-off base.

9. Check the adjustment by playing several records and observing the set-down point.

45 RPM Centerpost Adjustment:

The 45 RPM centerpost (G400B410) for the Admiral Model RC400 is very similar to, but is not interchangeable with, the 45 RPM centerpost (G400B329) used in Models RC221, RC222. The centerpost can be readily identified by noting that the length of the unthreaded portion of the push-off adjusting shaft (7B) is approximately 5/16" in G400B410 and 3/4" in G400B329.

If the records do not drop to the turntable, make the following adjustment:

1. Remove the power to the changer.

2. Push the reject knob (40) to the reject position.

3. Rotate the turntable (by hand), clockwise, until pickup arm has moved as far from the centerpost as it will go.

4. Insert the 45 RPM centerpost and lock it in position.

5. By doing this, the record supports (5) should be pulled inside the centerpost by approximately 1/32".

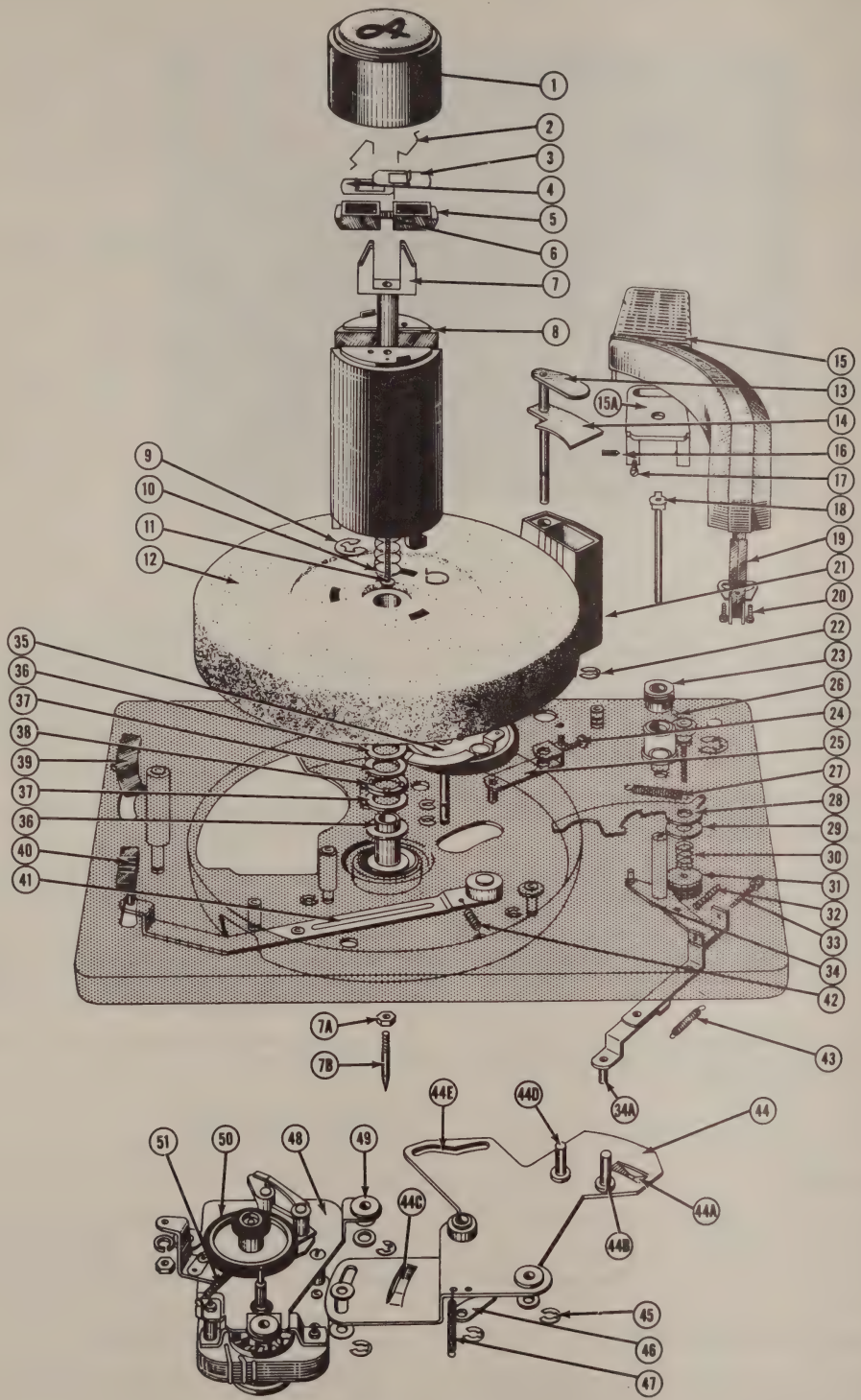
6. If the record supports do not pull in far enough, remove the spindle, loosen the lock nut (7A), and turn the adjusting shaft (7B) out one-half turn and tighten nut.

7. Insert the centerpost and check to see if the record supports (5) are pulled in to the proper position; if they are not, repeat Step 6. If they do pull in the correct dimension, place a stack of records on the centerpost and turn the changer on. Push the reject button (40) to "Reject", and reject all the records to see if they slide to the turntable smoothly; if so, the adjustment is correct.

CAUTION: If the turntable stalls during the change cycle, the adjusting shaft (7B) may have been turned out too far. If this is true, remove the centerpost, loosen lock nut (7A), turn adjusting shaft in three or four turns, and tighten lock nut. Replace centerpost and check adjustment.

33 RPM Push-Off Adjustment:

If 33 RPM records do not drop to the turntable,



A PHOTOFACT "EXPLODED" VIEW

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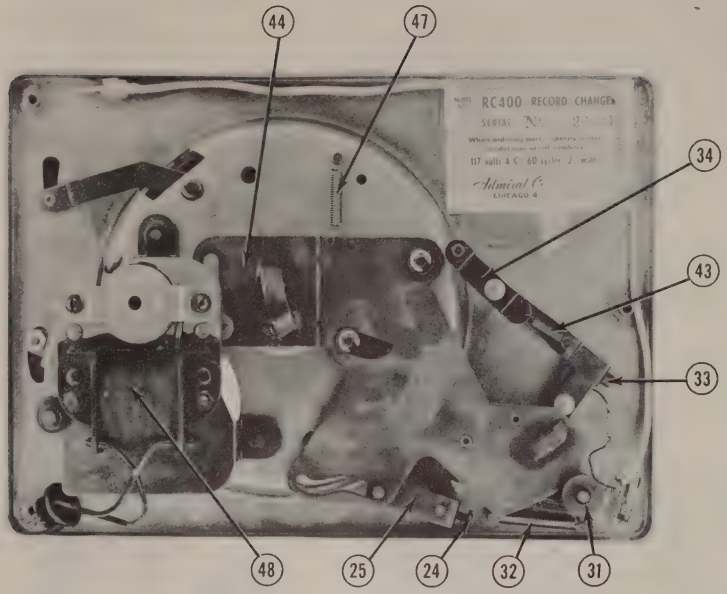

Figure 4

the push-off adjustment may not be correct. When properly adjusted, the push-off plate (13) will extend 1/32" beyond the edge of the record support (14) during the change cycle.

To make the adjustment, proceed as follows:

1. Remove power from the changer.

2. Push reject button (40) to "Reject".

3. Rotate turntable, by hand, until the pickup arm has moved all the way out from the centerpost.

4. Loosen set screw (24), Figure 4, and move the push-off plate (13) so that the leading edge extends 1/32" beyond the record support (14); then, tighten the set screw.

5. Check this adjustment by placing a stack of records on the spindle. Place the changer in operation and keep rejecting the records until they have all been dropped to the turntable.

REMOVAL AND DISASSEMBLY OF PARTS

45 RPM Centerpost:

To replace or repair parts, disassemble the 45 RPM centerpost as follows:

1. Remove screws (11) from the underside of the centerpost.

2. Remove the centerpost cap (1).

CAUTION: Do not push up on the adjusting shaft (7B) when the cap (1) is loose or has been removed. If this shaft is pushed up, the slicer return springs (2) and slicers (3 and 4) may fly off and be lost.

3. Using long-nose pliers, or tweezers, remove the slicer spring (2) which holds the top slicer (3) in place. Then remove the top slicer. (Note: This slicer has an offset. It must be removed first, when disassembling, and installed last, when reassembling).

4. Remove the other spring and slicer (4).

5. Push up on the push-off adjusting shaft (7B) and remove the record supports (5).

CAUTION: Release the record supports (5) carefully so as not to loosen spring (6) between the supports.

6. Remove the retaining ring (9) and spring (10) from the underside of the centerpost. Now pull the slicer cam and shaft from the centerpost base (8).

To reassemble the centerpost, merely reverse the above procedure.

Removing the Pickup Arm:

If for any reason the pickup arm should be removed, proceed as follows:

CAUTION: In removing the pickup arm, DO NOT loosen the Allen set screw (26) in the pivot bracket and collar (23). If this screw is loosened, it will be necessary to make the set-down point adjustment.

1. Loosen the pivot locking screw (17) at the front of the pickup arm counterweight.

2. Turn the pivot screw (16) almost all the way out.

3. Move the pickup arm to the right to free the

permanent pivot (part of counterweight) from the pivot hole in the collar (23).

4. When pivot points have been loosened, lift up on the pickup arm assembly to remove it.

To Reinstall the Pickup Arm Assembly:

1. Slide the counterweight (15A) down on the pivot collar (23) until the permanent pivot point falls into the pivot hole in the collar.

2. Tighten the pivot screw (16) until it is tight, and then back it off just enough so that the pickup arm can move up and down freely.

3. Tighten the pivot locking screw (17).

TROUBLES

Changer Will Not Trip Into Change Cycle:

1. Cycle spring (47) loose, broken or missing.

2. Spring (35A) loose or missing.

3. Drive wheel bracket (35B) binding.

4. Weak or loose trip tension spring (43).

5. Oil or grease on the drive-wheel tire (35).

Changer Trips Before Reaching End of Record:

1. Check adjustment of trip adjustment screw (33). See paragraph under heading "Trip Adjustment".

Changer Will Not Reject:

1. Roller on reject lever (41) missing.

2. Oil or grease on drive-wheel tire (35).

3. Drive bracket (35B) binding.

Pickup Arm Does Not Set Down Properly:

1. Check set-down adjustment. See Paragraph on "Set-Down Adjustment".

Records Do Not Drop To Turntable:

1. If 45 RPM records fail to drop to turntable, adjust the push-off adjusting shaft. See Paragraph on "45 RPM Centerpost Adjustment".

2. If 33 RPM records fail to drop, check the push-off adjustment. See Paragraph on "33 RPM Push-Off Adjustment".

Changer Stalls in Cycle:

1. Oil or grease on idler wheel (50).

2. Check for binding parts.

3. 45 RPM centerpost not adjusted properly. See Paragraph on "45 RPM Centerpost Adjustment".

Pickup Arm Skips Across Record:

1. Check changer to see if it is level.

2. Check for worn needle.

LUBRICATION

This changer has been lubricated at the factory and should not require lubrication for a long period of time; however, if it becomes necessary to lubricate, do so as follows: All pivot and friction points should be greased adquately but not excessively. A good automobile chassis grease may be used for this purpose.

The push-off shaft (13) and the bearing in the turntable hub may be lubricated with SAE No. 20 oil.

CAUTION: Be sure grease or oil does not come in contact with the motor shaft, idler-wheel tire (50), turntable rim, turntable hub or tire of drive wheel (35). Grease or oil on any of these parts may cause "Wow" or stalling during the change cycle.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	G400B 410	45 RPM Centerpost Complete - Including Items 1, 2, 3, 4, 5, 6, 7, 7A, 7B, 8, 9, 10, and 11	23	G400A 432	Pivot Bracket and Collar (Includes Allen Screw)
			24	65-375-C2-47	Push-Off Adjustment Lock
			25	G400A 420	Push-Off Bracket Assembly
1	403A 1	45 RPM Centerpost Cap	26	1A 43-9	Allen Head Set Screw #6-32 x 1/4"
2	414A 35	Slicer Return Spring			
3	401A 276	Top Slicer	27	405A 302	Set-Down Spring
4	401A 275	Bottom Slicer	28	401A 315	Index Bracket
5	403A 40	Record Supports	29	4B 1-87-47	Flat Washer, 25 x 3/8" x 1/32"
6	405A 125	Record Support Return Spring	30	405A 307	Lift Adjusting Lock Spring
7	G400A 411	Slicer Cam and Shaft			
7A	402A 312	Lock Nut	31	402A 306	Pickup Arm Lift Adjustment Nut
7B	402A 313	45 RPM Push-Off Adjusting Shaft	32	405A 305	Trip Adjusting Lock Spring
8	403B 43	45 RPM Centerpost Base	33	402A 328	Trip Adjusting Screw
9	401A 229	Retaining Ring	34	G400A 427	Pickup Arm Lever and Trip Bracket (Less Springs)
10	405A 124	45 RPM Push-Off Return Spring			
11	60-1000-C2-47	Screw, #6-32 x 1" RHMS (2 Req.)	35	G400A 407	Drive Wheel Assembly (Less Springs)
12	G400A-403	Turntable and Hub Assembly	35A	405A 303	Drive Wheel Spring
			36	412A 300	Cork Washer (2 req.)
13	G400A-417	33 RPM Push-Off Plate and Shaft	37 & 38	415A 300	Thrust Bearing Assembly
14	401A 311	33 RPM Record Support	39	403A 42	Speed Change Knob
15	403B 200	Pickup Arm	40	403A 302	Reject Knob
15A	G400A 433	Pickup Arm Counterweight	41	G400A 414	Reject Lever and Studs
			42	405A 127	Reject Lever Return Spring
16	402A 320	Pickup Arm Pivot Screw			
17	42-187-C2-47	Lock Screw, #4-40 x 3/16" F. H. M. S.	43	405A 127	Trip Tension Spring
			44	G400B 416	Drive Bracket (Includes Hub and Studs)
18	G400A 401	Pickup Arm Lift Rod and Plate	45	401A 177	Retaining Ring
19	409A 300	Cartridge With Needle	46	401A 307	Trip Bracket
	98A15-6	Needle	47	405A 92	Cycle Spring
20	409A 301	Cartridge With Needle	48	407C 300	Motor 33 and 45 RPM, 60 Cycle
	98A15-14	Needle			
21	G400A 418	Record Support Housing and Sleeve	49	406A 301	Motor Mounting Grommet
			50	98A 54-7	Compound Idler Wheel
22	401A 177	Retaining Ring	51	98A 54-10	Idler Wheel Spring

PHOTOFACT* Folder

ARVIN MODEL
4080T (CH. TE282)

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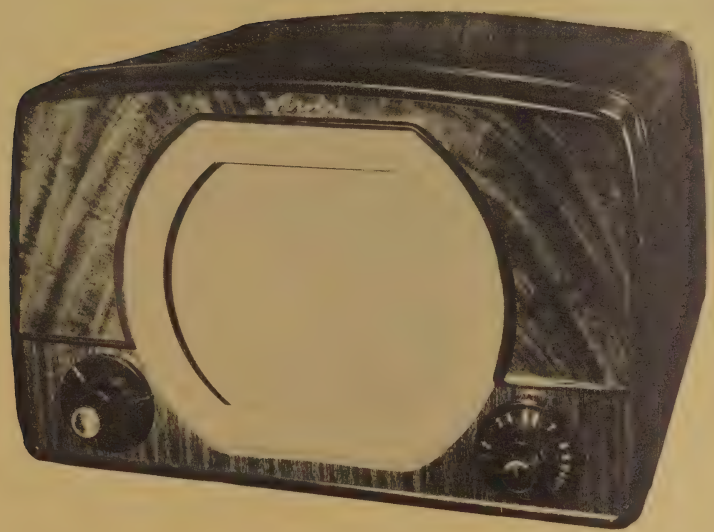

ARVIN MODEL
4080T (CH. TE282)

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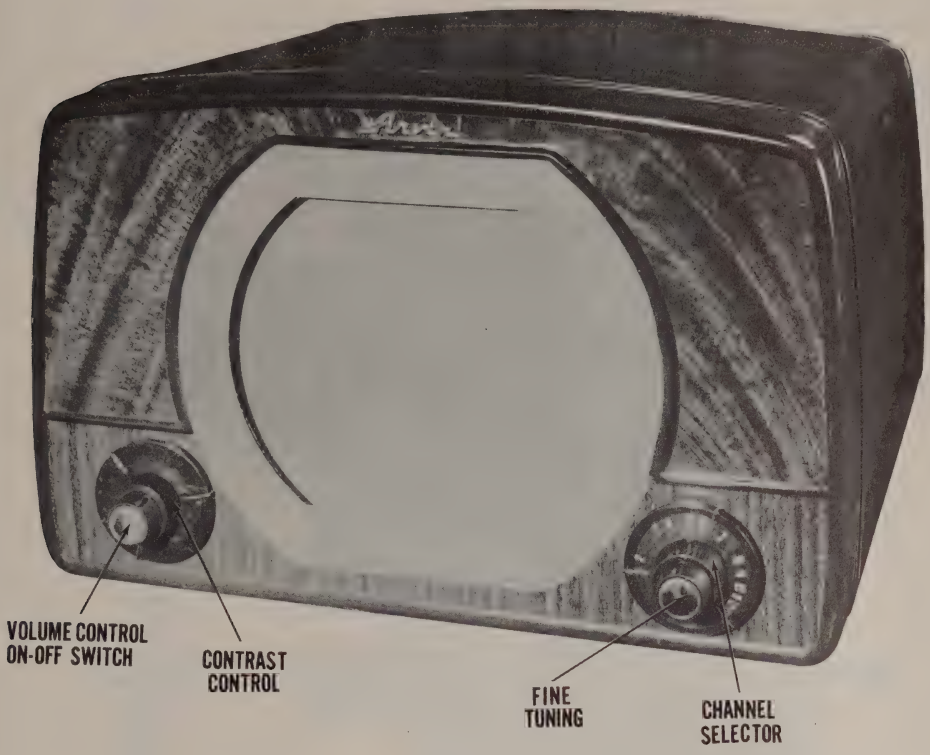

ARVIN
MODEL 4080T (Ch. TE282)

TRADE NAME	Arvin Model 4080T (Chassis TE282)
MANUFACTURER	Noblitt-Sparks Industries, Columbus, Indiana
TYPE SET	Television Receiver
TUBES	Eighteen
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.2 Amp. at 117 Volts AC
TUNING RANGE—Channels 2 thru 13	

INDEX

Alignment Instructions 6
Fine Tuning Drive Cord Stringing 13
Focus and Centering Adjustment 13
Horiz. Sweep Circuit Adjustment 10
Parts List and Description 14, 15, 16
Photographs
Cabinet-Rear View 10
Capacitor Identification 11, 18
Photographs (continued)
Chassis-Top View 3, 13
RF Tuner 7
Resistor Identification 12, 17
Trans., Inductor and Alignment Identification 4, 9
Schematic 2
Tube Placement Chart 5
Voltage and Resistance Measurements 8

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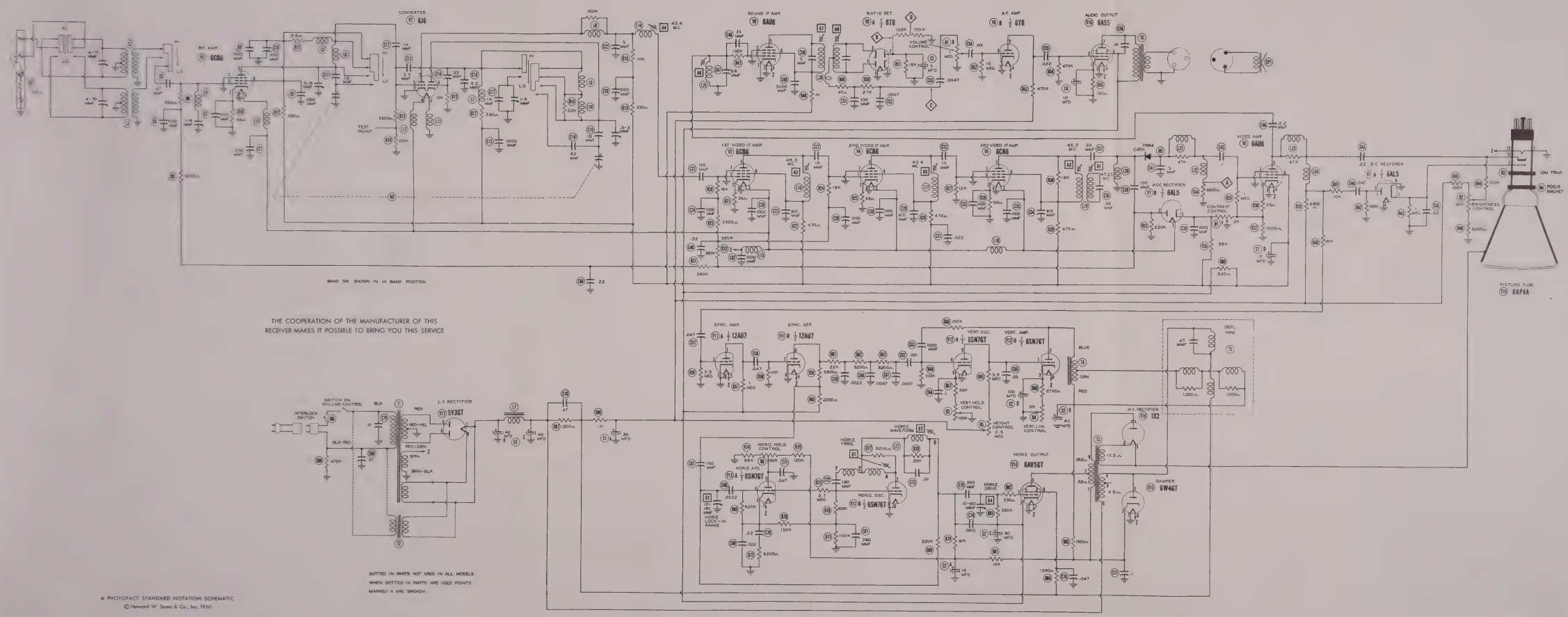
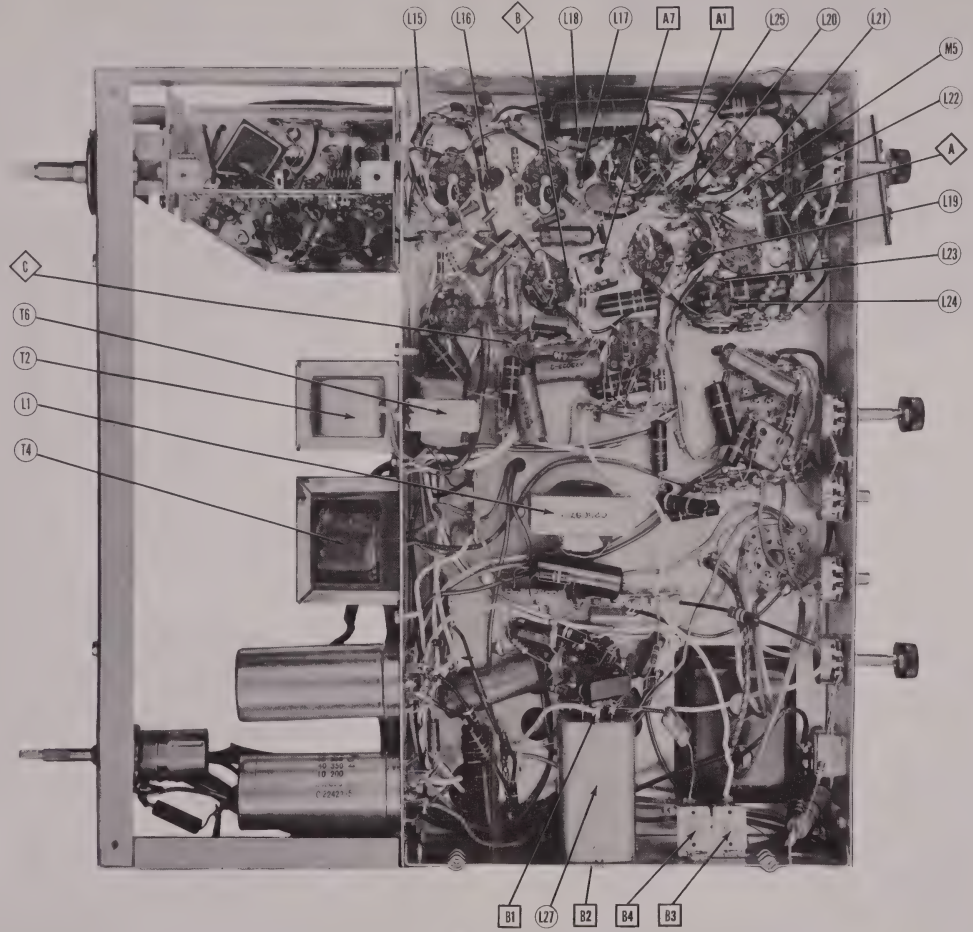


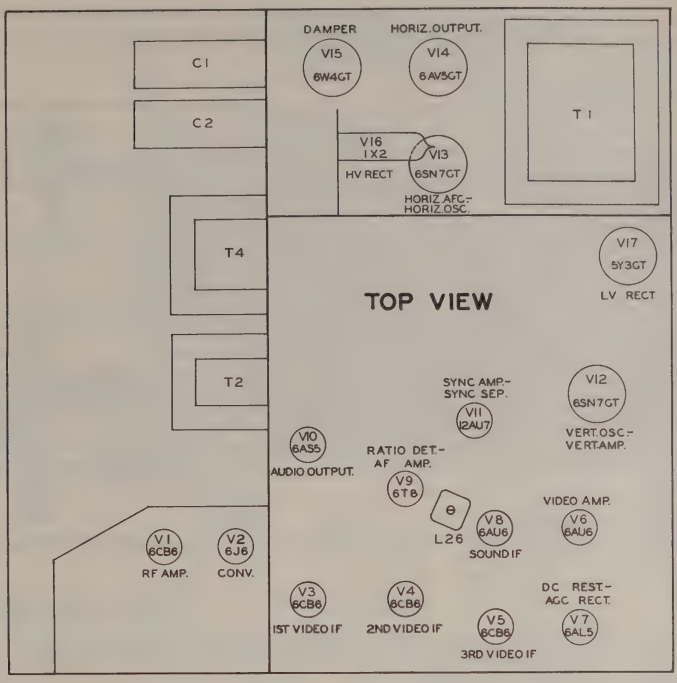
ARVIN
MODEL 4080T (Ch. TE282)

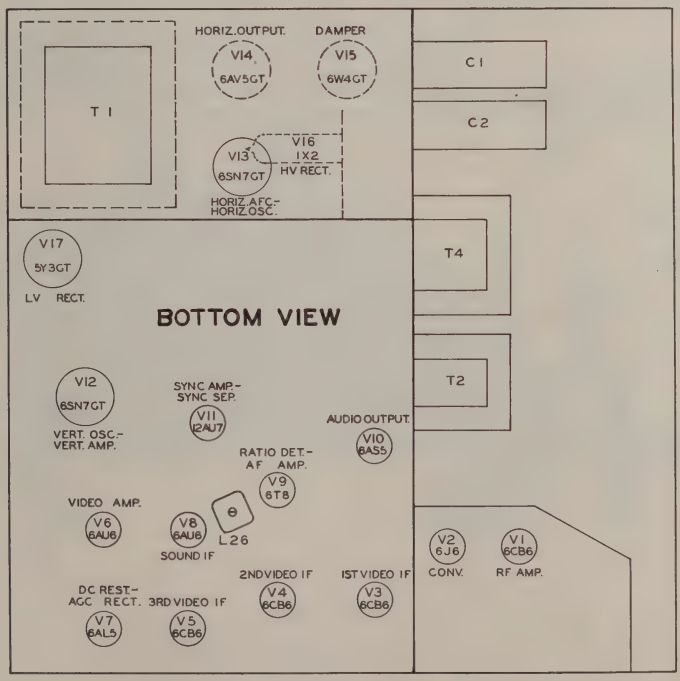
CHASSIS TOP VIEW

ARVIN
MODEL 4080T (Ch. TE282)



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V13) from its socket.

VIDEO IF ALIGNMENT

Connect the negative lead of a 2 volt battery to the junction of C28 and R24, connect the positive lead to chassis.
Turn the contrast control to 3/4 maximum (clockwise).
Remove the converter tube (V2) and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and prevent erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungounded tube shield floating over dummy mixer tube (V2). Low side to chassis.	47.25MC (Unmod.)	Any	DC Probe to Point (A). Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	Direct	"	45.3MC	"	"	A2, A3	Adjust for maximum deflection.
3.	Direct	"	43.4MC	"	"	A4, A5	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Direct	High side to ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	44MC (10MC SWP)	41.25MC 43.1MC 45.3MC 45.75MC	Any	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A2 thru A5 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from Point B to chassis. The junction of these two resistors is alignment Point D as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V6). Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe to Point (B). Common to chassis.	A6, A7	Adjust for maximum deflection.
6.	.01MFD	"	"	"	DC Probe to Point (C). Common to Point (D).	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V6). Low side to chassis.	4.5MC (450KC Sweep)	4.5MC	Any	Vert. Amp. to Point (B). Low side to chassis.	A6, A7	Disconnect stabilizer capacitor C3. Adjust for maximum amplitude and symmetry as per figure 2.
6.	.01MFD	"	"	"	"	Vert. Amp. to Point (D). Low side to chassis.	A8	Reconnect capacitor C3. Adjust A8 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

THE ADJUSTMENTS ON THE TUNER PORTION OF THIS RECEIVER HAVE BEEN PROPERLY ALIGNED AT THE FACTORY AND ARE VERY STABLE. THEY SHOULD NOT REQUIRE ADJUSTMENT IN THE FIELD.

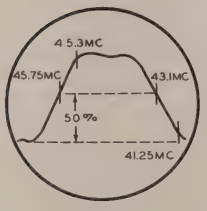


FIG. 1

FIG. 2

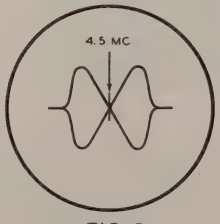
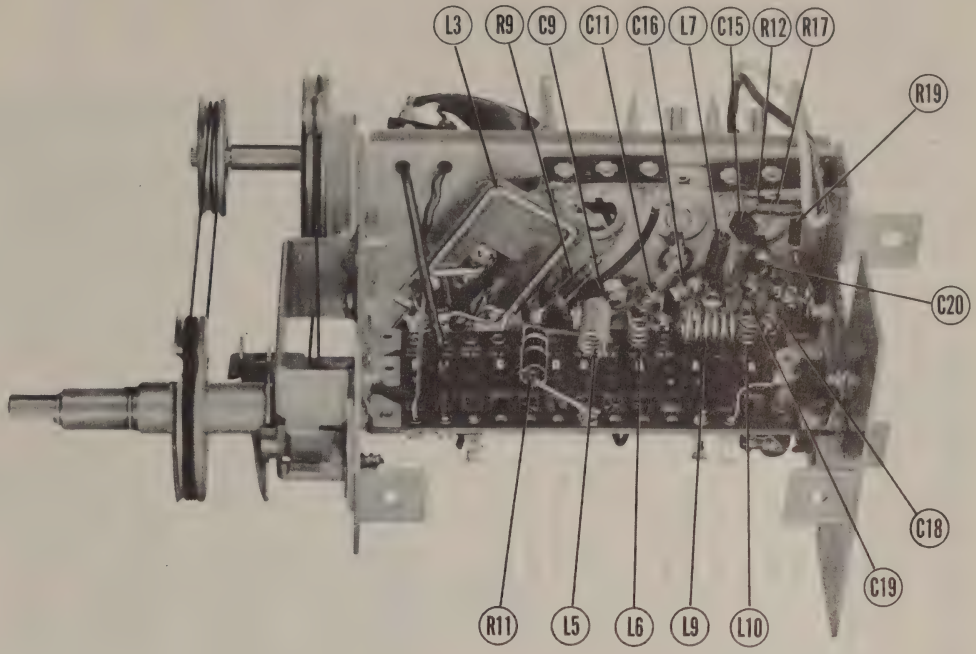
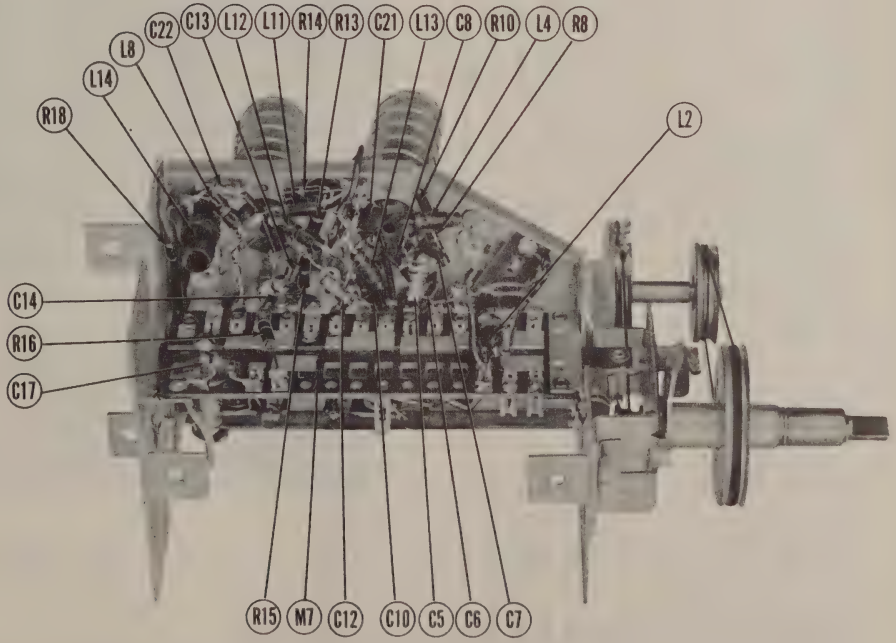


FIG. 3



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	-.7VDC	.4VDC	0V.	6.3VAC	110VDC	115VDC	0V.		
V 2	6J6	95VDC	70VDC	0V.	6.3VAC	-1.7VDC	§-6.8VDC	0V.		
V 3	6CB6	-.3VDC	.3VDC	6.3VAC	0V.	105VDC	115VDC	0V.		
V 4	6CB6	-.3VDC	.2VDC	6.3VAC	0V.	105VDC	115VDC	0V.		
V 5	6CB6	0V.	1.1VDC	6.3VAC	0V.	105VDC	115VDC	0V.		
V 6	6AU6	.4VDC	0V.	0V.	6.3VAC	250VDC	120VDC	7.2VDC		
V 7	6AL5	.3VDC	-.6VDC	6.3VAC	0V.	.1VDC	0V.	-.1VDC		
V 8	6AU6	-.6VDC	0V.	0V.	6.3VAC	105VDC	105VDC	0V.		
V 9	6T8	-.5VDC	-.7VDC	-.5VDC	6.3VAC	0V.	-1.2VDC	0V.	-.4VDC	75VDC
V 10	6AS5	8VDC	0V.	0V.	6.3VAC	0V.	130VDC	120VDC		
V 11	12AU7	11VDC	-.6VDC	0V.	6.3VAC	6.3VAC	75VDC	-.1VDC	0V.	0V.
V 12	6SN7GT	19VDC 11VDC	440VDC	36VDC 42VDC	-1.6VDC	19VDC 11VDC	4VDC 7VDC	0V.	6.3VAC	
V 13	6SN7GT	-31VDC	220VDC	0V.	-.8VDC	170VDC 110VDC	11VDC	6.3VAC	0V.	
V 14	6AV5GT	115VDC	0V.	125VDC	0V.	440VDC	0V.	6.3VAC	280VDC	
V 15	6W4GT	0V.	0V.	440VDC	0V.	290VDC	0V.	0V.	6.3VAC	
V 16	1X2	* DO NOT MEASURE.								
V 17	5Y3GT	0V	320VDC	6.3VAC	320VAC	0V	320VAC	0V	320VDC	
V 18	8AP4A	0V	.4VDC	PIN 11 15VDC	115VDC	PIN 12 6.3VAC				

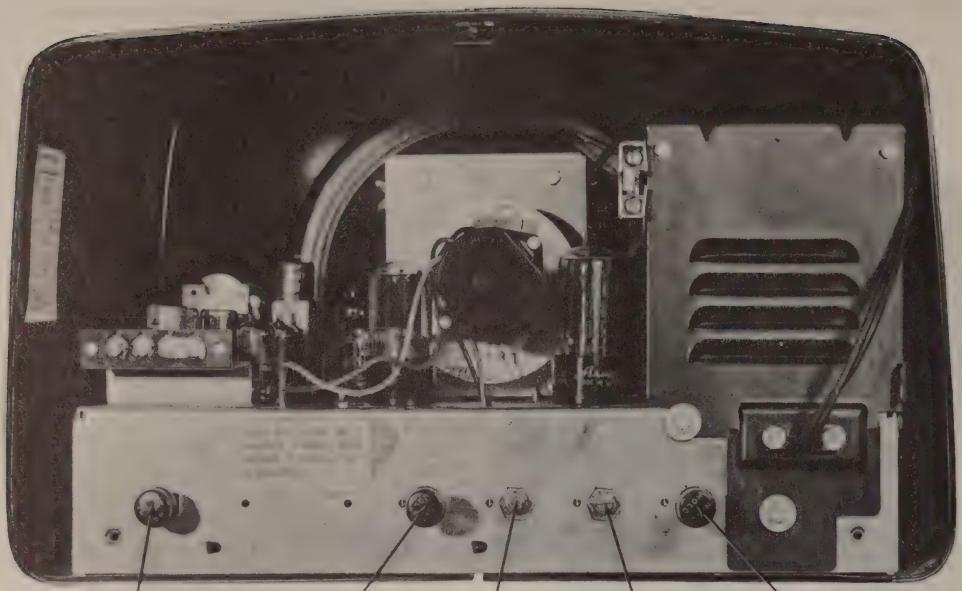
§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	785KΩ	68Ω	0Ω	.1Ω	▲550Ω	▲550Ω	0Ω		
V 2	6J6	▲550Ω	▲10KΩ	0Ω	.1Ω	105KΩ	10KΩ	0Ω		
V 3	6CB6	800KΩ	56Ω	.1Ω	0Ω	▲690Ω	▲690Ω	0Ω		
V 4	6CB6	800KΩ	68Ω	.1Ω	0Ω	▲690Ω	▲690Ω	0Ω		
V 5	6CB6	12KΩ	150Ω	.1Ω	0Ω	▲690Ω	▲690Ω	0Ω		
V 6	6AU6	1 Meg.	0Ω	0Ω	.1Ω	†8KΩ	▲220Ω	750Ω		
V 7	6AL5	1 Meg.	220KΩ	.1Ω	0Ω	25Ω	0Ω	100KΩ		
V 8	6AU6	100KΩ	0Ω	0Ω	.1Ω	▲1.2KΩ	▲1.2KΩ	0Ω		
V 9	6T8	Inf.	18KΩ	Inf.	.1Ω	0Ω	Inf.	0Ω	10 Meg.	†470KΩ
V 10	6AS5	150Ω	470KΩ	0Ω	.1Ω	470KΩ	▲0Ω	▲234Ω		
V 11	12AU7	▲1 Meg.	3.3 Meg.	0Ω	.1Ω	.1Ω	▲7.8KΩ	10KΩ	0Ω	0Ω
V 12	6SN7GT	†4 Meg. †6.5Meg.	■1.6KΩ	5.7KΩ 2.7KΩ	100KΩ	†4 Meg. †6.5Meg.	156KΩ 56KΩ	0Ω	.1Ω	
V 13	6SN7GT	250KΩ	■100KΩ	0Ω	900KΩ	■130KΩ ■180KΩ	300KΩ	.1Ω	0Ω	
V 14	6AV5GT	▲330KΩ	0Ω	▲0Ω	Inf.	■32Ω	Inf.	.1Ω	†1.5KΩ	
V 15	6W4GT	Inf.	Inf.	■0Ω	Inf.	†150Ω	Inf.	0Ω	.1Ω	
V 16	1X2	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ■315Ω
V 17	5Y3GT	Inf.	100KΩ	.1Ω	65Ω	Inf.	70Ω	0Ω	100KΩ	
V 18	8AP4A	0Ω	1 Meg.	PIN 11 150KΩ	108KΩ	PIN 12 .1Ω				

† MEASURED FROM PIN 8 OF V17.
▲ MEASURED FROM PIN 3 OF V14.
■ MEASURED FROM PIN 3 OF V15.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT

Connect a short circuit across terminals C and D of L27.

Turn the set on and tune in a TV station, preferably a test pattern. Adjust the vertical hold control to synchronize the picture vertically.

Turn the horizontal hold control to maximum clockwise.

Adjust the horizontal frequency slug (B1) until the picture just begins to tear out of synchronization.

Remove the short from L27.

Connect the low capacity vertical input cable from an oscilloscope to terminal C of L27 and chassis.

Adjust the horizontal waveform slug (B2) until the picture is synchronized horizontally and the waveform on the scope appears as shown in figure 4 with the broad and narrow peaks of equal height.

Turn the horizontal hold control to maximum counter-clockwise and momentarily interrupt the signal by switching to another channel and back again.

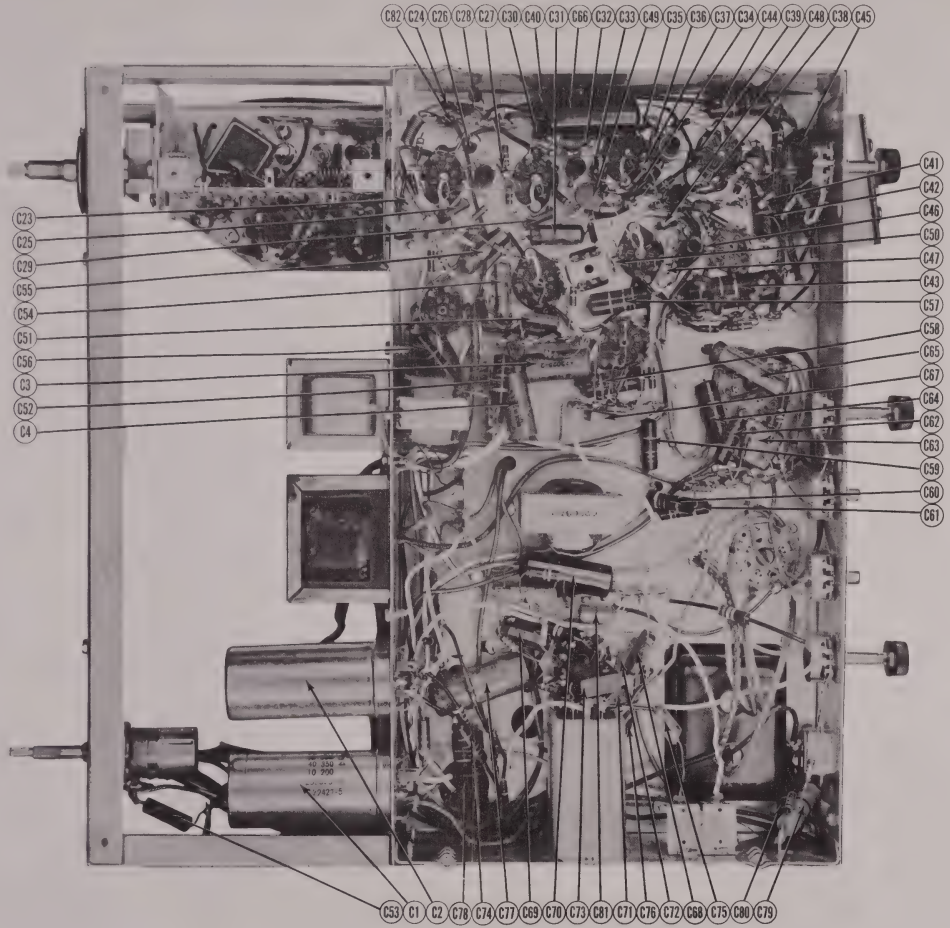
Slowly turn the hold control clockwise and note the least number of bars present just before the picture falls into synchronization.

If more than 3 bars are present at the pull in point, adjust the horizontal locking range trimmer (B3) slightly clockwise. If less than 3 bars are present at pull in, adjust B3 counter-clockwise. Repeat the check and adjustment of B3 until 3 bars are present at the pull in point.

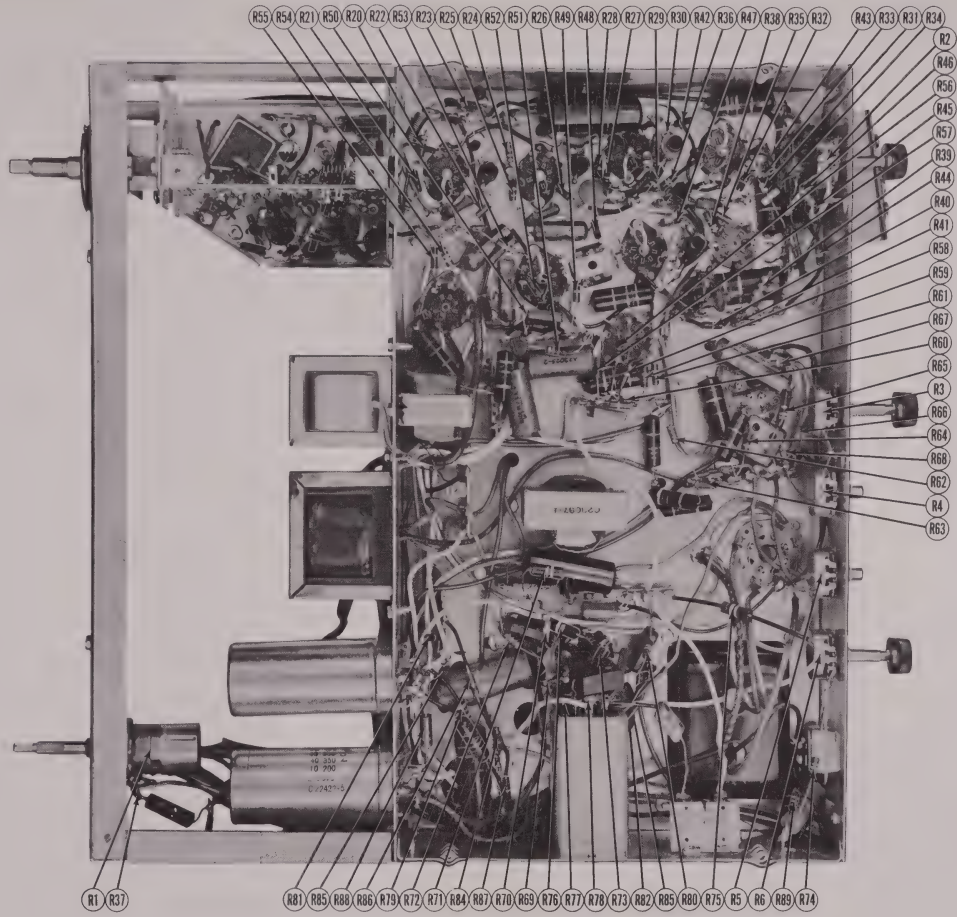
HORIZONTAL DRIVE ADJUSTMENT

Adjust the horizontal drive trimmer (B4) for best compromise between horizontal linearity and sufficient horizontal width.

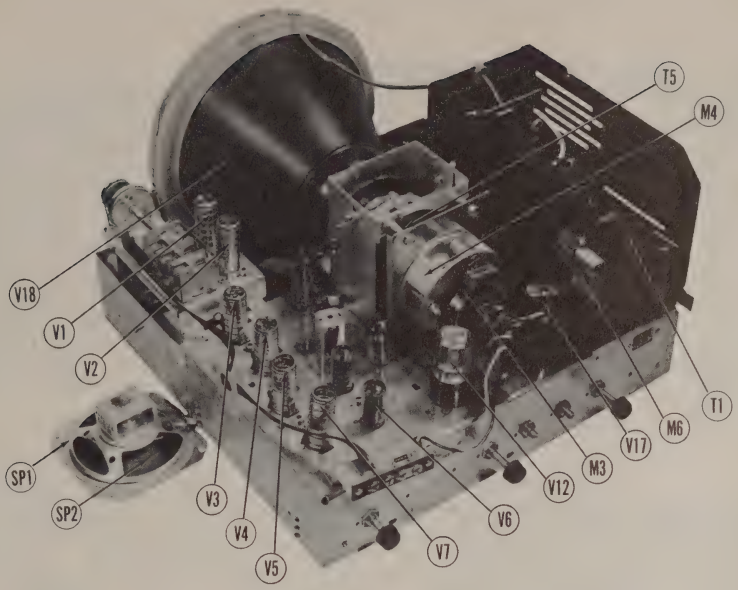
FIG. 4



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS-TOP VIEW
FOCUS AND CENTERING ADJUSTMENTS

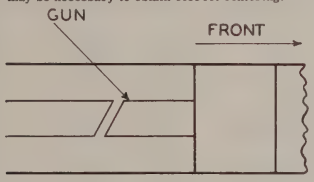
Turn the picture tube until the gun structure appears as shown in figure 5.

Turn the focalizer slug in until end of the flux screw is 1/16" from being against the front plate of the focalizer. Set the ion trap until it is approximately over the spotwelds on the gun structure.

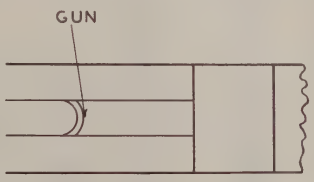
Turn the horizontal hold control to the mid-position of its range and adjust the ion trap and position the focalizer for maximum brightness and centering.

Adjust the horizontal drive trimmer B4 for best linearity and width.

Turn the contrast control for normal picture and adjust the focalizer slug for best focus. A slight adjustment of the ion trap and focalizer may be necessary to obtain correct centering.

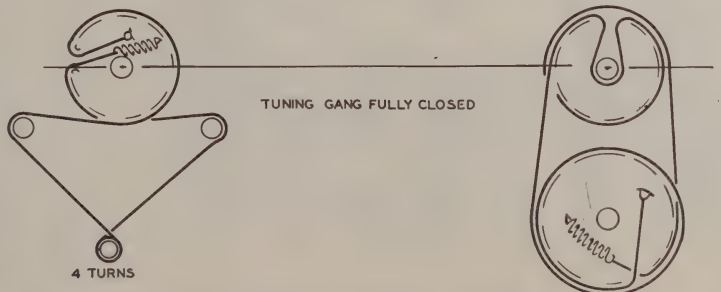


SIDE VIEW OF TUBE NECK



TOP VIEW OF TUBE NECK

FIG. 5



FINE TUNING DIAL CORD STRINGING

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ARVIN PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6CB6	6CB6	7CM	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF	6CB6	6CB6	7CM	
V4	2nd Video IF	6CB6	6CB6	7CM	
V5	3rd Video IF	6CB6	6CB6	7CM	
V6	Video Amp.	6AU6	6AU6	7BK	
V7	AGC Rect.-DC Rest.	6AL5	6AL5	6BT	
V8	Sound IF Amp. Ratio Det.-AF Amp.	6AU6	6AU6	7BK	
V9	Audio Output	6T8	6T8	9E	
V10	Sync Amp.-Sync Sep.	6A55	6A55	7CV	
V11	Vert. Osc.-Vert. Amp.	12AU7	12AU7	9A	
V12	Vert. Osc.-Vert. Amp.	6SN7GT	6SN7GT	8BD	
V13	Horr. AFC-Horr. Osc	6SN7GT	6SN7GT	8BD	
V14	Hor. Output	6AV5GT	6AV5GT	6CK	
V15	Damper	6W4GT	6W4GT	6CG	
V16	HV Rect	1X2	1X2	7CB	
V17	LV Rect	5Y3GT	5Y3GT	5T	
V18	Picture Tube	8AP4A	8AP4A	12H	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	30	450	C23423-5	AFH6288B2E				TVL-304	▲ Filter
B	40	350						TVA-77	■ Filter
C	40	350							◆ Filter
D	10	300							Decoupling
C2A	10	450	C24422-6	AFH2J88H6E				TVL-310	▲ Decoupling
B	40	350		20B				TVA-17	■ Vert. Output Decoup.
C	80	200							◆ Decoupling
D	100	50							Vert. Output Cath. Byp.
C3	5	150	A23025-2	PRS150/4		BR415		TVA-60	Stabilating Cap.
C4	10	25	A23023-1	PRS25/10		BR102A		TVA-5	Output Cathode Byp.
C5	.47		C20204-470	GP473M	D6-470		GP1K-47		RF Coupling
C6	1000		A23078	GP1000M	D6-102		81I-001	29C4	AGC Filter
C7	1000		A23078	GP1000M	D6-102		81I-001	29C4	RF Cath. Bypass
C8	1000		A23078	GP1000M	D6-102		81I-001	29C4	RF Decoupling
C9	1000		A23078	GP1000M	D6-102		81I-001	29C4	RF Decoupling
C10	1000		A23078	GP1000M	D6-102		81I-001	29C4	RF Decoupling
C11	13		C20205-10	CN13ZNPO			NPOK-13		Fixed Padder
C12	14		C20205-14	CN14ZNPO			NPOK-14		RF Coupling
C13	3.3	3	A20238-5	CN3.3DNPO	D2-3.3		NPOK-3.3		Osc. Coupling
C14	33		C20205-12	CN33KN220			N220K-33		Osc. Grid Cap.
C15	1000		A23078	GP1000M	D6-102		81I-001	29C4	RF Bypass
C16	8.2		C20205-13	CN8.2DNPO			NPOK-8.2		Fixed Trimmer
C17	14		C20205-14	CN14ZNPO			NPOK-14		Fixed Trimmer
C18	82		C20204-820		D2-82		GP1K-82		Fixed Padder
C19	18		C20205-15	CN18ZNPO	D2-18		NPOK-18		Fixed Padder
C20	1000		A23078	GP1000M	D6-102		81I-001	29C4	Conv. Plate Decoup.
C21	1000		A23078	GP1000M	D6-102		81I-001	29C4	Filament Bypass
C22	5		C20205-9	CN5PN150			N150K-5		Fixed Trimmer
C23	100		C20204-101	GP100M	D6-101		GP1K-100		IF Coupling
C24	1000		A23078	GP1000M	D6-102	1W5D1	81I-001	29C4	AGC Filter
C25	610		C20351-10	GP561M	D6-681	1W5T6	GP2K-680	1FM-37	1st V. IF Decoup.
C26	1000		A23078	GP1000M	D6-102	1W5D1	81I-001	29C4	1st V. IF Fil. Bypass
C27	15		C20205-8	GP15M	D6-150	5W5Q2	GP1K-15	MS-415	IF Coupling
C28	1000		A23078	GP1000M	D6-102	1W5D1	81I-001	29C4	AGC Filter
C29	610		C20351-10	GP680M	D6-681	1W5T6	GP2K-680	1FM-37	2nd V. IF Decoup.
C30	1000		A23078	GP1000M	D6-102	1W5D1	81I-001	29C4	2nd V. IF Fil. Byp.
C31	.022	400	C20281-223	P488-022		DT4S2		TM-12	RF Bypass
C32	15		C20205-8	GP15M	D6-150	5W5Q2	GP1K-15	MS-415	IF Coupling
C33	1000		A23078	GP1000M	D6-102	1W5D1	81I-001	29C4	3rd V. IF Cath. Byp.
C34	610		C20351-10	GP680M	D6-681	1W5T6	GP2K-680	1FM-37	3rd V. IF Decoup.
C35	1000		A23078	GP1000M	D6-102	1W5D1	81I-001	29C4	3rd V. IF Fil. Byp.
C36	39	300		SR5H4	D2-39	5W5H4	NPOL-39	MS-44	Fixed Trimmer
C37	33		C20203-12	GP33M	D6-330	5W5Q4	GP1K-33	MS-33	IF Coupling
C38	100		C20204-101	GP100M	D6-101	5W5T1	GP1K-100	1FM-31	IF Coupling
C39	1000		A23078	GP1000M	D6-102	1W5D1	81I-001	29C4	DAGC Decoupling
C40	.22	200	C20292-224	P488-22		DT2P5		TC-2	AGC Filter
C41	5		C20205-9	GP5K	D2-4.7	5W5V5	GP1K-5	MS-55	V. Diode Filter
C42	1	300	C20291-104	P288-1		PTE4P1		TM-1	Video Coupling
C43	.22	400	C20292-224	P488-22		GT4P25		TC-2	Video Coupling
C44	.047	400	C20292-473	P488-047		PTE4S5		TM-15	Video Coupling
C45	.22	200	C20291-224	P488-22		GT4P25		TC-2	Pic. Tube Grid Filter
C46	2.2		C20205-7	CN2.2CNPO	D2-2.2				Fixed Trimmer
C47	68		C20205-11	CN68ZN150			N150L-68		Fixed Trimmer
C48	100		C20205-13	GP33K	D6-330	5R5Q3	GP1K-33	MS-43	S. IF Coupling
C49	5000		A21674	BP3-5	D6-502	1D5D5	81I-005	29C1	S. IF Deco.pling
C50	5		C20205-9	CN5PN150			N150K-5		Fixed Trimmer
C51	330	500	C20205-331	1468-00035	D6-331	5W5T3	GP2K-330	1FM-335	Diode Load Cap.
C52	.0047	600	C20295-472	P688-0047	D6-472	PTE6D5	GP2M-0047	TM-25	De-emphasis
C53	.0047	600	C20295-472	P688-0047	D6-472	PTE6D5	GP2M-0047	TM-25	Audio Coupling
C54	.001	600	C20295-102	P688-001	D6-102	PTE6D1	GP2L-001	TM-21	Audio Coupling
C55	.022	400	C20292-223	P488-022		PTE4S2		TM-12	Audio Coupling
C56	.01	600	C20295-103	P688-.01	D6-103	PTE6S1	81I-01	TM-11	Output Plate Byp.
C57	.047	400	C20292-473	P488-047		PTE4S5		TM-15	Sync. Coupling
C58	.047	400	C20292-473	P488-047		PTE4S5		TM-15	Sync. Coupling
C59	.0022	600	C20295-222	P688-.0022	D6-222	PTE6D2	GP2M-0022	TM-22	Integrator Net.
C60	.0047	600	C20295-472	P688-0047	D6-472	PTE6D5	GP2M-0047	TM-25	Integrator Net.
C61	.0047	600	C20295-472	P688-0047	D6-472	PTE6D5	GP2M-0047	TM-25	Integrator Net.
C62	.001	600	C20295-102	P688-001	D6-102	PTE6D1	GP2L-001	TM-21	Vert. Sync. Coupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C63	1000	500		1467-001	D6-102	1W5D1	GP2L-001	1FM-21	Vert. Osc. Feedback
C64	1	200	C20291-104	P288-1		PTE4P1		TM-1	Vert. Osc. Cath. Byp.
C65	03	600	C20295-323	P688-03		PTE6S3		TM-13	Vert. Discharge
C66	22	200	C20291-224	P488-22		GT4P25		TC-3	AGC Filter
C67	150	500	C20065-151	1468-00015	D6-151	5W5T15	GP2K-150	1FM-315	Hor. Sync. Coupling
C68	.0022	600	C20295-222	P688-0022	D6-222	PTE6D2	GP2M-0022	TM-22	Hor. Sync. Coupling
C69	.022	400	C20292-223	P488-022		PTE4S2		TM-12	AFC Filter
C70	22	200	C20291-224	P488-22		GT2P25		TC-3	AFC Filter
C71	.047	600	C20295-473	P688-047		PTE6S5		TM-15	Hor. AFC Plate Bypass
C72	180	1000	A22412						Hor. Osc. Grid Cap.
C73	01	600	C20324-103	P686-01			PTE6S1	TM-11	Fixed Trimmer
C74	.0015	600	C20324-153	P686-0015	D6-152	1W5D15	GP2L-0015	1FM-315	Hor. Discharge
C75	390	500	C20290-391	1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	Hor. Sweep Coupling
C76	.047	400	C20292-473	P488-047		PTE4S5		TM-15	Hor. Output Screen Byp.
C77	1	1000	C20329-104	1084-1		GT16P1			Damper Filter
C78	.47	200	C20291-474	P288-47		GT2P5		TC-5	Hor. Sweep Coupling
C79	.01	600	C20356-103	P688-01	D6-103	PTE6S1	81I-01	TM-11	Line Filter
C80	.01	600	C20358-103	P688-01	D6-103	PTE6S1	81I-01	TM-11	Line Filter
C81	390	500	C20290-391	1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	Filament Bypass
C82	1000		A23078	GP1000M	D6-102	1W5D1	81I-001	29C4	Filament Bypass

CONTROLS

ITEM No	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2000Ω	1	D22464-9			SBBT-622-8	Contrast control-Front-See note 1
B	1 Meg.	1					Volume control and switch-rear-See note 1
R2A	50kΩ	½	D22464-14	Q11-123	AM-44-8	AN-31	Brightness control
B	Shaft		Not Req.	Not Req.	KSB-3	AK-4	Attach to R2A per instructions
R3A	100kΩ	½	D22464-11	Q11-128	AM-49-S	AN-40	Vert. hold control
B	Shaft		Not Req.	Not Req.	KSB-3	AK-4	Attach to R3A per instructions
R4A	3000Ω	1	D22464-12	Q11-112	AM-15-S	B-8	Vert. linearity control
B	Shaft		Not Req.	Not Req.	FKS 1/4"	Not Req.	Attach to R4A per instructions
R5A	2.5 Meg.	½	D22464-10	Q11-539	M-84-8	AN-83	Height control
B	Shaft		Not Req.	Not Req.	FKS 1/4"	AK-1	Attach to R5A per instructions
R6A	50kΩ	½	D22464-13	Q11-123	AM-44-8	AN-31	Horiz. hold control
B	Shaft		Not Req.	Not Req.	KSB-3	AK-4	Attach to R6A per instructions

Note 1. Some models use 1500Ω contrast control with 1 Meg. volume control and switch Part. No. D22464-16.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED
R7	100Ω 20%	½	C20061-101		Ant. Isolation
R8	560Ω	1	C22381-561	BTS-560	RF Grid
R9	3300Ω 20%	1	C20061-332	BTS-3300	AGC Network
R10	68Ω 20%	½	C20061-680		RF Cathode
R11	2.2Ω	1	C20070-39		Parasitic Supp.
R12	330Ω 20%	½	C20061-331		RF Decoupling
R13	560Ω	1	C22381-562		Conv. Grid
R14	100kΩ 20%	½	C20061-104		Conv. Grid
R15	10kΩ	1	C22381-103		Osc. Grid
R16	22kΩ	1	C22381-223	BTS-22K	Osc. Coil Shunt
R17	330Ω 20%	½	C20061-331		RF Plate Decoupling
R18	10kΩ	1	C22381-103		Conv. Plate
R19	330Ω 20%	½	C20061-331		Conv. Plate Decoupling
R20	18kΩ 5%	1	C22382-183		1st Video IF Grid
R21	56Ω 5%	1	C22382-560		1st Video IF Cathode
R22	470Ω 20%	½	C20061-471	BTS-470	1st Video IF Decoupling
R23	3300Ω 20%	½	C20061-332	BTS-3300	AGC Network
R24	18kΩ 5%	1	C22382-183		2nd Video IF Grid
R25	68Ω	1	C22381-680		2nd Video IF Cathode
R26	470Ω 20%	½	C20061-471	BTS-470	2nd Video IF Decoupling
R27	12kΩ 5%	1	C22382-123		3rd Video IF Grid
R28	150Ω	1	C22381-151		3rd Video IF Cathode
R29	470Ω 20%	½	C20061-471	BTS-150	3rd Video IF Decoupling
R30	18kΩ 5%	1	C22382-183		4th Video IF Transformer Shunt
R31	560kΩ	1	C22381-564	BTS-560K	AGC Network
R32	560kΩ	1	C22381-564	BTS-560	AGC Network
R33	220kΩ	1	C22381-224	BTS-220K	AGC Rect. Diode Load
R34	680Ω	1	C22381-682	BTS-680	Video Det. Load
R35	1 Meg. 20%	½	C20061-105	BTS-1 Meg.	Video Amp. Grid
R36	56kΩ	1	C22381-563	BTS-56K	Delayed AGC Network
R37	1000Ω 20%	½	C20061-102	BTS-1000	Voltage Divider
R38	39Ω	1	C22381-390		Video Amp. Cathode
R39	6800Ω	1	C20070-682	BTA-6800	Video Amp. Plate
R40	10kΩ 20%	½	C20061-103	BTS-10K	Isolation
R41	10kΩ 20%	½	C20061-103	BTS-10K	Phase Correction
R42	560kΩ	1	C22381-564	BTS-560K	DC Rest. Diode Load
R43	1 Meg. 20%	½	C20061-105	BTS-1 Meg.	Picture Tube Grid
R44	100kΩ 5%	1	C22382-104	BTS-100K-5%	Voltage Divider
R45	100kΩ 20%	½	C20061-104	BTS-100K	Voltage Divider
R46	820Ω	1	C22381-822	BTS-8200	Voltage Divider
R47	100kΩ 20%	½	C20061-104		Sound IF Grid
R48	1000Ω 20%	½	C20061-102	BTS-1000	Sound IF Decoupling
R49	47Ω	1	C22381-470		Balancing
R50	27kΩ	1	C22381-273	BTS-27K	De-emphasis
R51	18kΩ 5%	1	C22382-183	BTS-18K-5%	Ratio Det. Diode Load
R52	10 Meg. 20%	½	C20061-106	BTS-10 Meg.	AF Amp. Grid
R53	470kΩ 20%	½	C20061-474	BTS-470K	AF Amp. Plate
R54	470kΩ 20%	½	C20061-474	BTS-470K	Output Grid
R55	150Ω	1	C22381-151	BW-J-150	Output Cathode
R56	3.3 Meg. 20%	½	C20061-335	BTS-3.3 Meg.	Sync. Amp. Grid
R57	1 Meg. 20%	½	C20061-105	BTS-1 Meg.	Sync. Amp. Plate
R58	10kΩ 20%	½	C20061-103	BTS-10K	Sync. Sep. Grid
R59	560Ω	½	C22381-562	BTS-5600	Sync. Sep. Plate

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	IDENTIFICATION CODES
R60	2200Ω	½	C22381-222	BTS-2200	Sync. Sep. Plate
R61	22kΩ	½	C22381-223	BTS-22K	Integrator Network
R62	8200Ω	½	C22381-822	BTS-8200	Integrator Network
R63	8200Ω	½	C22381-822	BTS-8200	Integrator Network
R64	100kΩ 20%	½	C20061-104	BTS-100K	Vert. Osc. Grid
R65	3.9 Meg.	½	C22381-395	BTS-3.9 Meg.	Vert. Osc. Plate
R66	100kΩ	½	C22381-104	BTS-100K	Feedback
R67	56kΩ	½	C22381-563	BTS-56K	Vert. Osc. Cathode
R68	2700Ω	½	C22381-272	BTS-2700	Vert. Amp. Cathode
R69	820kΩ 5%	1	C22382-824	BTS-820K-5%	Horiz. AFC Grid
R70	150kΩ	½	C22381-154	BTS-150K	Horiz. AFC Cathode
R71	150kΩ 5%	1	C22383-154	BTA-150K-5%	Horiz. AFC Cathode
R72	8200Ω	½	C22381-822	BTS-8200	Horiz. AFC Filter Network
R73	2.7 Meg. 5%	1	C22383-275	BTA-2.7 Meg. 5%	Voltage Divider
R74	68kΩ	½	C22381-683	BTS-68K	Voltage Divider
R75	120kΩ	1	C20070-124	BTA-120K	Voltage Divider
R76	100kΩ 5%	1	C22383-104	BTA-100K-5%	Horiz. Osc. Grid
R77	8200Ω	½	C22381-822	BTS-8200	Horiz. Osc. Transformer Shunt
R78	22kΩ	½	C22381-223	BTS-22K	Horiz. Osc. Transformer Shunt
R79	91kΩ 5%	1	C22383-913		Horiz. Osc. Plate
R80	220kΩ	½	C22381-224	BTS-220K	Horiz. AFC Filter Network
R81	10kΩ 20%	½	C20061-103	BTS-10K	Filter
R82	330Ω 20%	½	C20061-331		Parasitic Supp.
R83	330kΩ 20%	½	C20061-334	BTS-330K	Horiz. Output Grid
R84	1500Ω 20%	½	C20061-152	BTS-1500	Horiz. Output Screen
R85	1500Ω 20%	½	C20061-152	BTS-1500	Decoupling
R86	1000Ω 20%	½	C20061-102	BTS1000	Filter
R87	1200Ω	½	C22381-123	BTS-1200	Filter
R88	220Ω 20%	1	C20103-221	BW-1-220	Filter
R89	470kΩ 20%	½	C20061-474	BTS-470K	Line Filter

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1A	117VAC	620VCT	6.3VAC		E23088 ①			
	② 1.1A	.135ADC	② 8A					
■					E23541 ②			

① Used in early production models.
② Used in late production models.

TRANSFORMER (FILAMENT)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T2	117VAC	5VAC			①		P-3040 ③	
	② .12A	② 2A						

① Used in early production models.
③ Drill one new mounting hole.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T3	315Ω	17.5Ω	E23089		HVO-6		Hor. Output Trans.
	Tap ② 32Ω	Tap ② 4.3Ω					
		SEC. 2 0Ω					
T4	1000Ω		C22905-1	A-8113	A-3037	T3O-5 ③	Vert. Output Trans.
	Tap ② 135Ω						
T5A	25Ω		AC23084-1	DY-1	MD-3		Hor. Deflection Coil
B	61Ω						Vert. Deflection Coil

③ Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T6	3400Ω	3.3Ω	234Ω	.3Ω	AC23090-1	A-3877 ③	A-2930 ③	RO-8	③ Drill one new mounting hole. ④ Drill new mounting holes and mount at right angle to original.

ARVIN
MODEL 408OT (Ch. TE282)

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	ARVIN PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.3Ω	C22875	ST-113 MOD. P4-X	4A07	
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.135ADC	130Ω	3.3 Henries	C33087	C-2325 ③	C-2997 ③	TR-4200③	③ Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	ARVIN PART No.	MEISSNER PART No.	
L2	Ant. Coil	0Ω	0Ω			Low-Band Part of tuner AE23054-1
L3	Ant. Coil	0Ω	0Ω			High-Band Part of tuner AE23054-1
L4	RF Choke	.5Ω		AA21445-1		
L5	RF Coil	0Ω				Low-Band Part of tuner AE23054-1
L6	RF Coil	0Ω				High-Band Part of tuner AE23054-1
L7	RF Choke	.5Ω		AA21445-1		
L8	RF Choke	.1Ω		AA23257-1		Wound on 100KΩ resistor
L9	Osc. Coil	0Ω				Low-Band Part of tuner AE23054-1
L10	Osc. Coil	0Ω				High-Band Part of tuner AE23054-1
L11	Fil. Choke	0Ω		AA22334-1		
L12	Fil. Choke	0Ω		AA22334-1		
L13	Fil. Choke	0Ω		AA22334-1		
L14	1st Video IF	.1Ω		C23091-1		
L15	Fil. Choke	0Ω		A23095		
L16	2nd Video IF	.1Ω		C23091-2		
L17	3rd Video IF	.1Ω		C23091-2		
L18	Fil. Choke	0Ω		A23095		
L19	4th Video IF	.2Ω		C23092		
L20	Peaking	2Ω		C22500-6		20 microhenries, yellow identification dot
L21	Peaking	8.2Ω		C22500-9		Wound on 47KΩ resistor
L22	Peaking	8Ω		C22500-3	19-1922	250 microhenries, green identification dot
L23	Peaking	8.2Ω		C22500-9		Wound on 47KΩ resistor
L24	Peaking	8Ω		C22500-3	19-1922	250 microhenries, green identification dot
L25	Sound IF	1.2Ω		C23093		
L26	Ratio Det. Trans.	6.2Ω	1.9Ω	C23094		
L27	Horiz. Osc. Trans.	125Ω	38Ω	D22563		

MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
M1	RF Tuner	AE23054-1	
M2	Tuning Capacitor	C23057	
M3	Ion Trap	C23378	
M4	Focus Magnet	C23058-1	
M5	Crystal	A23261	1N64 Video Detector
M6	Switch	A22868	AC Interlock
M7	Switch		Band Change
	Trimmer	A23130	Horiz. Drive 10-160MMF
	Trimmer		Horiz. Range 10-160MMF
	Trimmer	A23119	Antenna Coil High-Band 4-70MMF
	Trimmer		Antenna Coil Low-Band 4-70MMF
	Safety Glass	D23047	
	Knob	AA23022	Band Change
	Knob	A23020-1	Channel Tuning
	Knob	AA23023	Contrast
	Knob	A23021-1	Volume
	Knob	A22686-1	Vert. Hold
	Knob	A22686-2	Horiz. Hold
	Knob	A22686-3	Brightness

AUTOMATIC
MODEL D-200

AUTOMATIC
MODEL D-200

AUTOMATIC MODEL D-200

TRADE NAME	Automatic, Model D-200
MANUFACTURER	Automatic Radio Mfg. Co. Inc., 122 Brookline Ave., Boston, Mass.
TYPE SET	Battery Operated Custom Built Automotive Superheterodyne Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 DET-AVC-AF, 6AQ5 Power Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery
RATING	5.4 Amp. at 6 Volts DC
TUNING RANGE—BROADCAST	538-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set right hand edge of pointer carriage 2 11/32" from right hand edge of dial backplate.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V2). Low side to chassis.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	100MMF	High side to antenna lead. Low side to chassis.	1600KC	"	"	A5	"
3.	100MMF	"	1400KC	Tune for max. output	"	A6, A7	"
4.	100MMF	"	600KC	"	"	A8, A9 A10	Adjust for maximum output. Repeat steps 3 and 4 until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS

AUTOMATIC
MODEL D-200

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amp.	6BA6	6BA6	7BK	
V4	DET.-AVC-AF	6AT6	6AT6	7BT	
V5	Power Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6V4	6V4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUTOMATIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	350				UP2235C		TVL-3634	■ Filter
B	20	350						TVA-1504	▲ Filter
C	20	25							Output Cath. Byp.
C2	.05	200		P288-05		PTE4S5		TM-15	AVC Filter
C3	.05	200		P288-05		PTE4S5		TM-15	Decoupling
C4	.05	200		P288-05		PTE4S5		TM-15	AVC Filter
C5	100			GP100M	D6-101	5W5T1	GP1K-100	1FM-31	Osc. Grid Cap.
C6	200			GP200M	D6-201	5W5T2	GP2K-200	1FM-32	Diode RF Filter
C7	.002	200		P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C8	200			GP200M	D6-201	5W5T2	GP2K-200	1FM-32	AF Amp. Grid Byp.
C9	200			GP200M	D6-201	5W5T2	GP2K-200	1FM-32	AF Amp. Plate Byp.
C10	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Audio Coupling
C11	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Output Plate Byp.
C12	.008	1600		P1688-0075		PTE16D8		MB-28	Buffer
C13	.5	100		P288-5		GT2P5		68P20	Hash Filter
C14	.5	100		P288-5		GP2P5		68P20	Hash Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1	750KΩ	½	RV-200				Volume control and switch

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	IDENTIFICATION CODES
R2	1 Meg.	½		BTS-1 Meg.	AVC Network
R3	20KΩ	½		BTS-22K	Osc. Grid
R4	2000Ω	½		BTS-2200	IF Cathode-See Note 1
R5	2 Meg.	½		BTS-2.2 Meg.	AVC Network
R6	10 Meg.	½		BTS-10 Meg.	AF Grid
R7	240KΩ	½		BTS-220K	AF Plate
R8	510KΩ	½		BTS-470K	Output Grid
R9	330Ω	½		BW-½-330	Output Cathode
R10	20KΩ	2		BT-2-22K	Screen Dropping
R11	1000Ω	1		BTA-1000	Filter
R12	100Ω	½		BW-½-100	Hash Suppression
R13	100Ω	½		BW-½-100	Hash Suppression

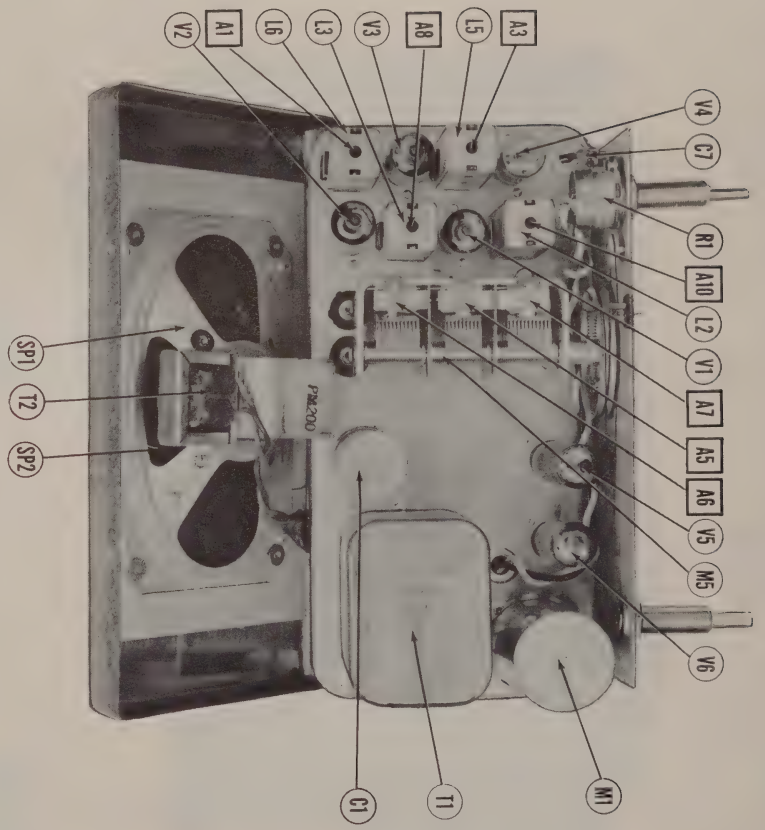
Note 1. Some models use 1000Ω resistor in this application.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: AUTOMATIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6VDC @ 3A	480VCT .052ADC			TV-86		P-4071 ①	VT-1

① Drill new mounting holes.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AUTOMATIC	STANCOR	MERIT	CHICAGO	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
T2	5300Ω	3.9Ω	260Ω	.5Ω	Part of SP1	A-3328 ②	A-3026 ②		② Bend mounting tabs down.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA				INSTALLATION NOTES
			AUTOMATIC	VIKING	QUAM		
	FIELD	V. C. IMP.	PART No.	PART No.	PART No.		
SP1	PM	3.9Ω	PM-200x	46J6 ①	46A1 ①		① Remount output transformer
	CONE DIA.	V. C. DIA.					
SP2	4" x 6"	9/16"					

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AUTOMATIC PART No.	MEISSNER PART No.	
L1	Ant. Loading	1.8Ω				
L2	Ant. Coil	13.9Ω	3.9Ω	57FB-3		
L3	RF Coil	100Ω	7.5Ω	57FB-4		
L4	Osc. Coil	4.6Ω			14-1073	Tap at .6Ω
L5	1st IF	21Ω	21Ω	1655-16	16-6758	
L6	2nd IF	21Ω	21Ω	1655-16	16-6758	
L7	Hash Choke	0Ω				
L8	Hash Choke	.1Ω				

VIBRATOR

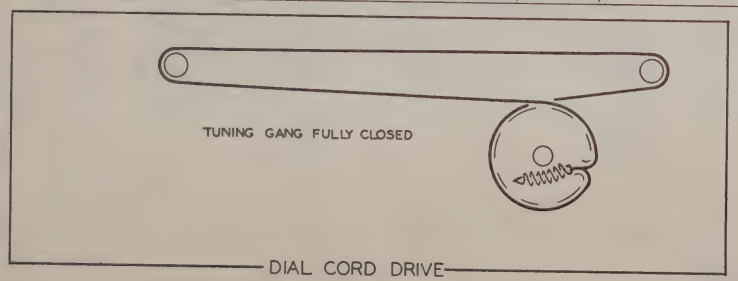
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				AUTOMATIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Int.	6VDC	115 ∿	V-83	A-100	C-01	5300	

DIAL LIGHTS

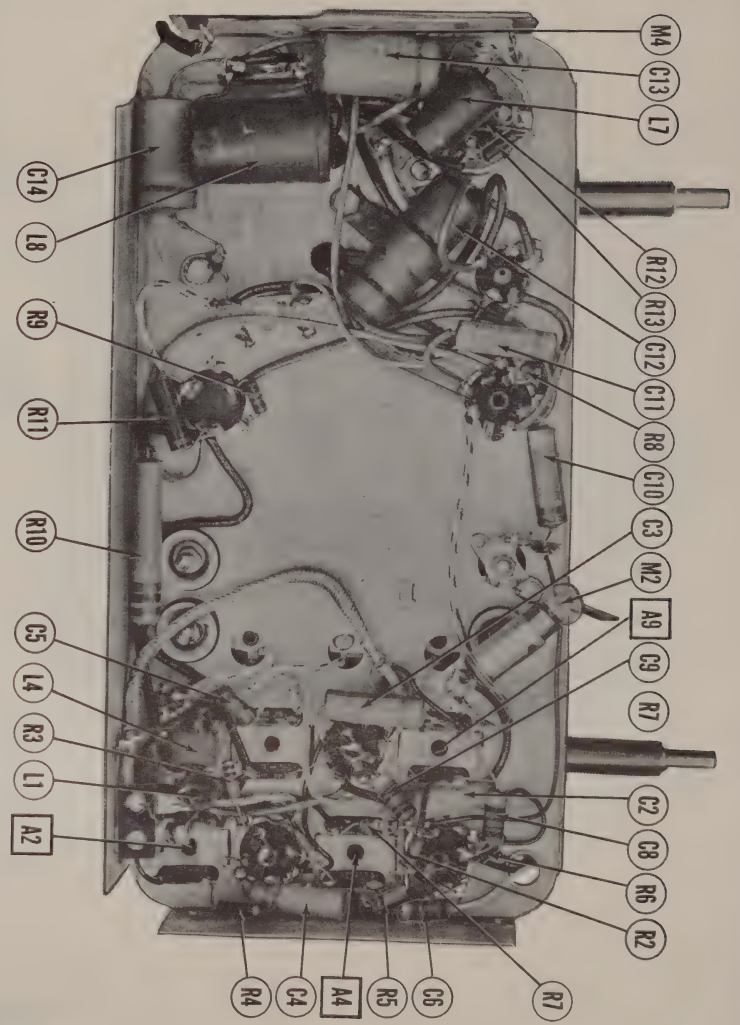
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					AUTOMATIC PART No.		
M2	Bayonet	6-8	.20	White			Type #51

MISCELLANEOUS

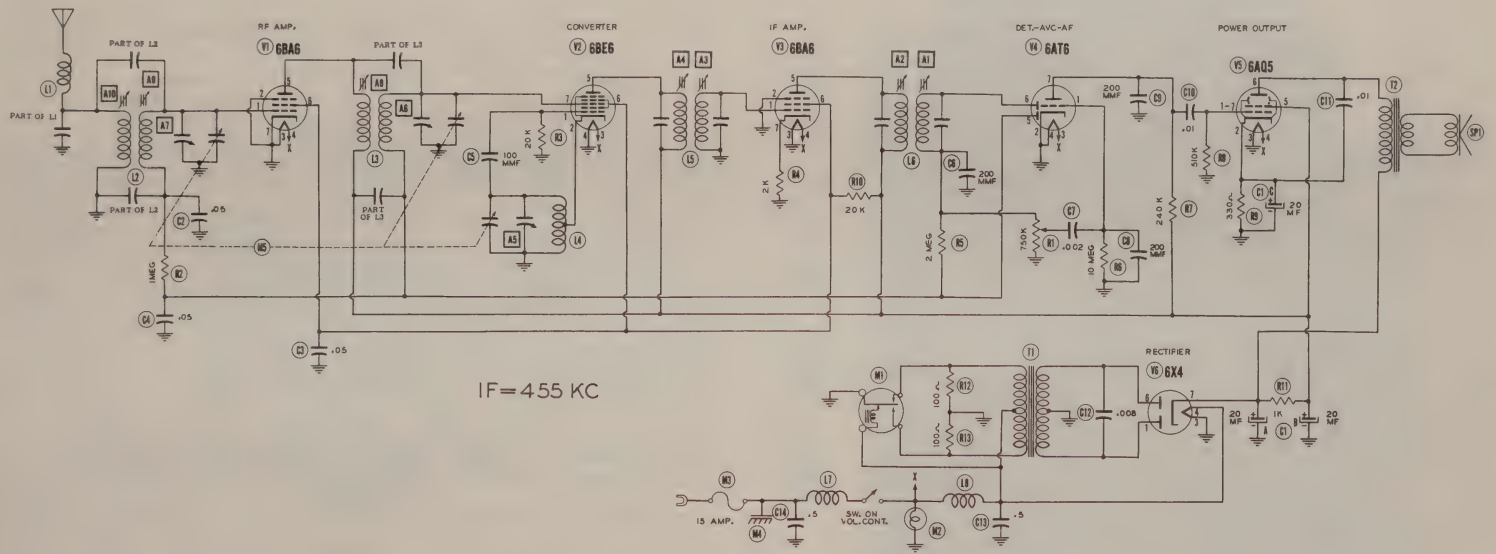
ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
M3	Fuse		15 Amp.
M4	Spark Plate		
M5	3 Gang Var. Cap.	CV-200	(24-387MMF, 20-317MMF, 37-227MMF)



CHASSIS—BOTTOM VIEW



AUTOMATIC MODEL D-200



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	-.4VDC	0V.	0V.	6VDC	205VDC	55VDC	0V.
V 2	6BE6	1-4.4VDC	0V.	6VDC	0V.	205VDC	55VDC	-.5VDC
V 3	6BA6	0V.	0V.	0V.	6VDC	205VDC	55VDC	3.5VDC
V 4	6AT6	-.5VDC	0V.	6VDC	0V.	-.3VDC	-.3VDC	65VDC
V 5	6AQ5	.2VDC	11VDC	0V.	6VDC	230VDC	205VDC	.2VDC
V 6	6X4	280VAC	0V.	0V.	6VDC	0V.	280VAC	225VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	3.7Meg.	0Ω	≡	.4Ω	†1000Ω	†20KΩ	0Ω
V 2	6BE6	30KΩ	.6Ω	.4Ω	0Ω	†1000Ω	†20KΩ	2.7 Meg.
V 3	6BA6	21Ω	0Ω	0Ω	.4Ω	†1000Ω	†20KΩ	2000Ω
V 4	6AT6	10 Meg.	0Ω	.4Ω	0Ω	2.7 Meg.	750KΩ	†240KΩ
V 5	6AQ5	510KΩ	330Ω	0Ω	.4Ω	†260Ω	†1000Ω	510KΩ
V 6	6X4	350Ω	Inf.	0Ω	.4Ω	Inf.	350Ω	55KΩ

† MEASURED FROM PIN 7 OF V6.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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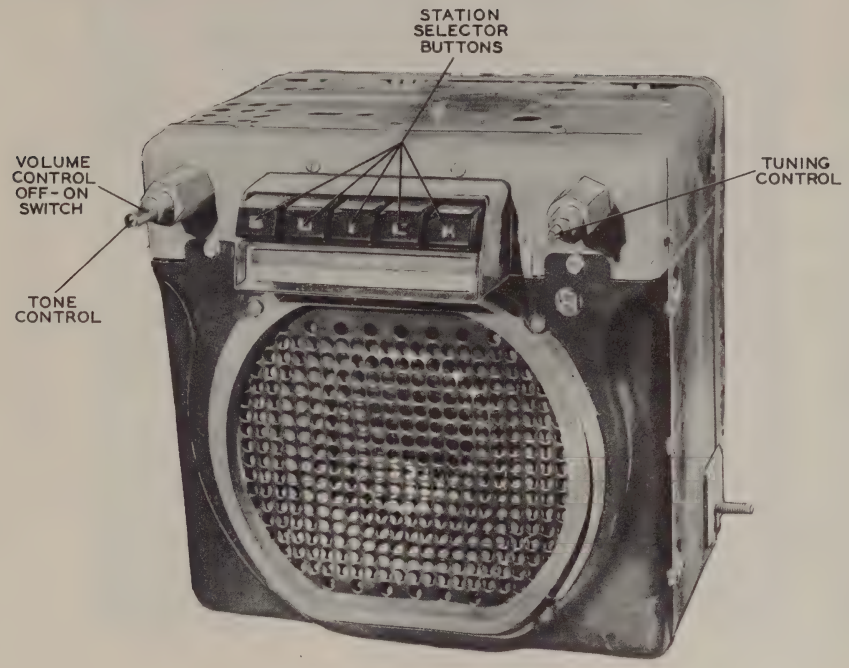
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



BUICK MODEL 980868

TRADE NAME	Buick, Model 980868
MANUFACTURER	Buick Motor Div. of General Motors Corp., Detroit, Michigan
TYPE SET	Battery Operated Custom Built Automotive Superheterodyne Receiver
TUBES (SEVEN)	Types 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SR7 DET-AVC-AF, (2) 6V6GT Power Output, 0Z4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 6.4 Amp. at 6 Volts DC
TUNING RANGE—BROADCAST	550-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The 82MMF capacitor used as a dummy antenna is a critical value. The use of nany other size capacitor will result in inaccurate alignment.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

Before beginning step 2 set the oscillator slug A5, so rear of slug is 1 25/32" from the mounting end of coil. This setting is made with the dial set against the high frequency stop.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 8 (Grid) 6SA7 (V2). Low side to chassis.	260KC	Against high frequency stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	82MMF	High side to antenna a connector. Low side to chassis.	1615KC	"	"	A6, A7, A8	"
3.	82MMF	"	1000KC	Tune for max. output	"	A9, A10	"
4.	82MMF	"	1000KC	"	"		Adjust the pointer adjustment screw so that dial pointer corresponds with 1000KC mark on the dial. Pointer should be on first "0" of "100".

WITH RECEIVER INSTALLED IN AUTO, AND ANTENNA FULLY EXTENDED, TUNE IN A WEAK SIGNAL NEAR 1400KC AND ADJUST A8 FOR MAXIMUM VOLUME.

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PARTS LIST AND DESCRIPTIONS

BUICK MODEL 980868

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: BUICK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	5229	6SK7	8N	
V2	Converter	5222	6SA7	8R	
V3	IF Amp.	5229	6SK7	8N	
V4	DET-AVC-AF	5233	6SR7	8Q	
V5	Power Output	5241	6V6GT	7AC	
V6	Power Output	5241	6V6GT	7AC	
V7	Rectifier	5003	0Z4	4R	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: BUICK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	400	M908	E3C152		UP2245C		TVL-3678	■ Filter
B	20	400							▲ Filter
C	20	25							Output Cath. Byp.
C2	.05	200	E503	P288-05		PTE4S5		TM-15	AVC Filter
C3	.1	400	E104	P488-1		PTE4P1		TM-1	Decoupling
C4	220	500	G221	1468-00025	D6-221	5W5T25	GP2K-220	1FM-325	RF Coupling
C5	39	500	G390	1469-00004	D2-39	5R5Q4	NPOL-39	MS-44	Fixed Trimmer
C6	180		G181	SI180JN150			N150M-180		Fixed Trimmer
C7	10	500	G100	1468-00001	D6-100	5W5Q1	GP1K-10	MS-41	IF Coupling
C8	.005	600	E502	P688-005	D6-502	PTE6D5	811-005	TM-25	Audio Coupling
C9	220	500	G221	1468-00025	D6-221	5W5T25	GP2K-220	1FM-325	AF Amp. Plate Byp.
C10	120	500	G121	1468-0001	D6-121	5W5T1	GP2K-120	1FM-31	Tone Compensation
C11	.0025	400	7240578	P488-0022	D6-252	PTE6D2	GP2M-0025	TM-22	Tone Compensation
C12	.2	400	E204	P488-22		GT4P2		TC-2	Audio Coupling
C13	.025	400	1211232	P488-025		PTE4S2		TM-12	Tone Compensation
C14	.0015	800	7236134	P1068-0015		PTE16D1		MB-21	Output Plate Bypass
C15	.006	1600	H602	P1688-006		PTE16D6		MB-26	Buffer
C16	.5	200	E504	P288-5		GT2P5		TC-5	Hash Filter

CONTROLS

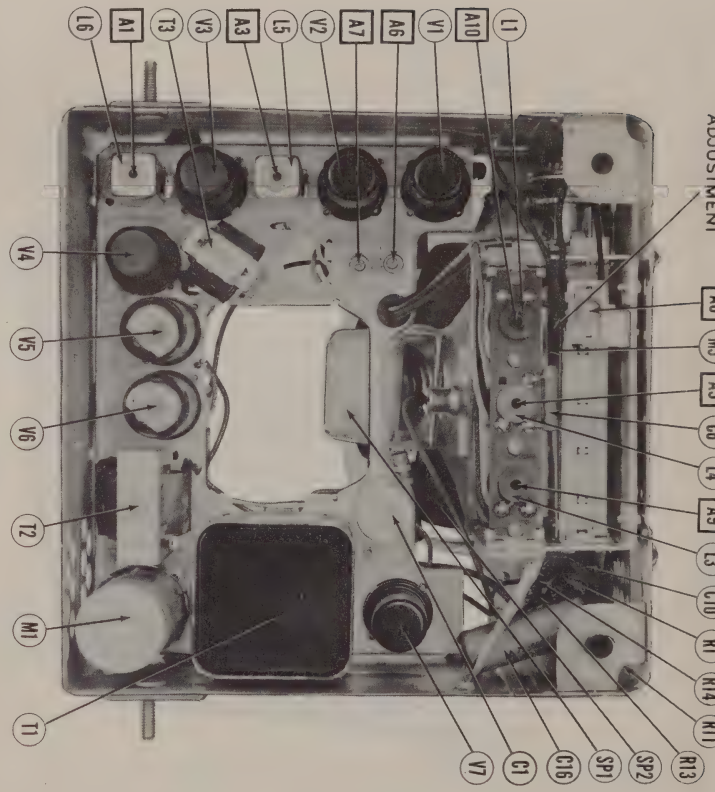
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BUICK PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	250KΩ		7258683	Concentrikit			
B	1 Meg.			B13-130 *			Tone control-front
C	Shaft End			B13-137X *			Volume control-rear-tapped at 250KΩ
D	Switch			E-187 *			Attach per instructions in "Concentrikit"
E	Sleeve			76-1 *			Attach per instructions in "Concentrikit"
	Bushing			S-5 *			Attach per instructions in Concentrikit.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BUICK PART No.	IRC PART No.	IDENTIFICATION CODES
R2	100Ω	½	A101	BW-½-100	RF Cathode
R3	2.2 Meg.	½	A225	BTS-2.2 Meg.	RF Grid
R4	10 Meg.	½	A106	BTS-10 Meg.	AVC Network
R5	15KΩ	1	B153	BTA-15K	RF Plate Load
R6	330KΩ	½	A334	BTS-330K	Conv. Grid
R7	22KΩ	½	A223	BTS-22K	Osc. Grid
R8	15KΩ	2	C153	BT-2-15K	Screen Dropping
R9	1 Meg.	½	A-105	BTS-1 Meg.	AVC Network
R10	1 Meg.	½	A-105	BTS-1 Meg.	AVC Diode Load
R11	47KΩ	½	A473	BTS-47K	Diode Filter
R12	820KΩ	½	A824	BTS-820K	Bias Network
R13	68KΩ	½	A-683	BTS-68K	Tone Compensation
R14	470KΩ	½	A-474	BTS-470K	Tone Compensation
R15	1000Ω	½	A-102	BTS-1000	AF Amp. Cathode
R16	1000Ω	½	A-102	BTS-1000	AF Amp. Cathode
R17	1 Meg.	½	A-105	BTS-1 Meg.	AF Amp. Grid
R18	27KΩ	1	B-273	BTA-27K	AF Amp. Plate Load
R19	330Ω	2	C-331	BW-2-330	Output Cathode
R20	1800Ω	2	*	BTA-1800	Filter
R21	220Ω	1	B-221	BW-1-220	Hash Suppression

* Replace with one 2700Ω, 2 watt #C272 resistor and one 5600Ω, 1 watt #B562 in parallel.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	BUICK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6VDC @ 4A	540VCT .073ADC			6060		P-4079 ①	VT-4

① Drill new mounting holes.

TRANSFORMER (INTERSTAGE)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		BUICK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	2000Ω CT				7258941		A-2914 ①②		① Drill new mounting holes. ② Use secondary only.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		BUICK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T3	9500Ω CT	4.3Ω	385Ω CT	.4Ω	7258945	A-3852	A-2936 ①		① Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			BUICK PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-117		
SP1	PM	4.3Ω	7255895	MOD. P8-T	8A31	
	CONE DIA.	V. C. DIA.				
SP2	7 1/4"	1"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	BUICK PART No.	MEISSNER PART No.
L1	Ant. Coil	11Ω		7258914	
L2	Ant. Hash Choke	5.2Ω		7240251	
L3	RF Coil	11Ω		7258914	
L4	Osc. Coil	1.4Ω	5Ω	7258911	
L5	1st IF	52Ω	52Ω	1219508	16-6752
L6	2nd IF	50Ω	50Ω	1219509	16-6754
L7	Hash Choke	0Ω		1217846	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				BUICK PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Int.	6VDC	115 ∿	8542	A-100	C-00	5300	Original part #7239124

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					BUICK PART No.		
M2	Bayonet	6-8	.4	White	55		Type #55

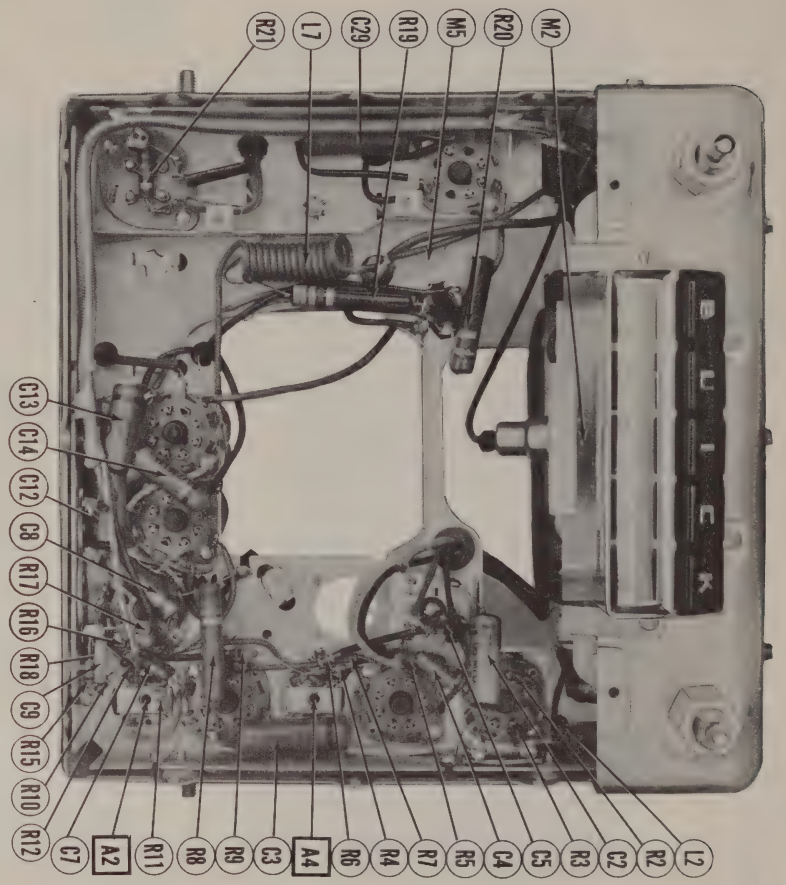
MISCELLANEOUS

ITEM No.	PART NAME	BUICK PART No.	NOTES
M3	Fuse	120151	15 Amp.
M4	Tuner		
M5	Spark Plate	1217848	
A6	Dual Trimmer	7242454	Osc. Adj.
A7			RF Adj.
A8			Ant. Adj.
	Trimmer	7258733	
	Pointer Assembly	7258678	
	Dial	7256885	
	Knob	1341566	Control
	Knob	1341535	Dummy
	Knob	1341536	Tone

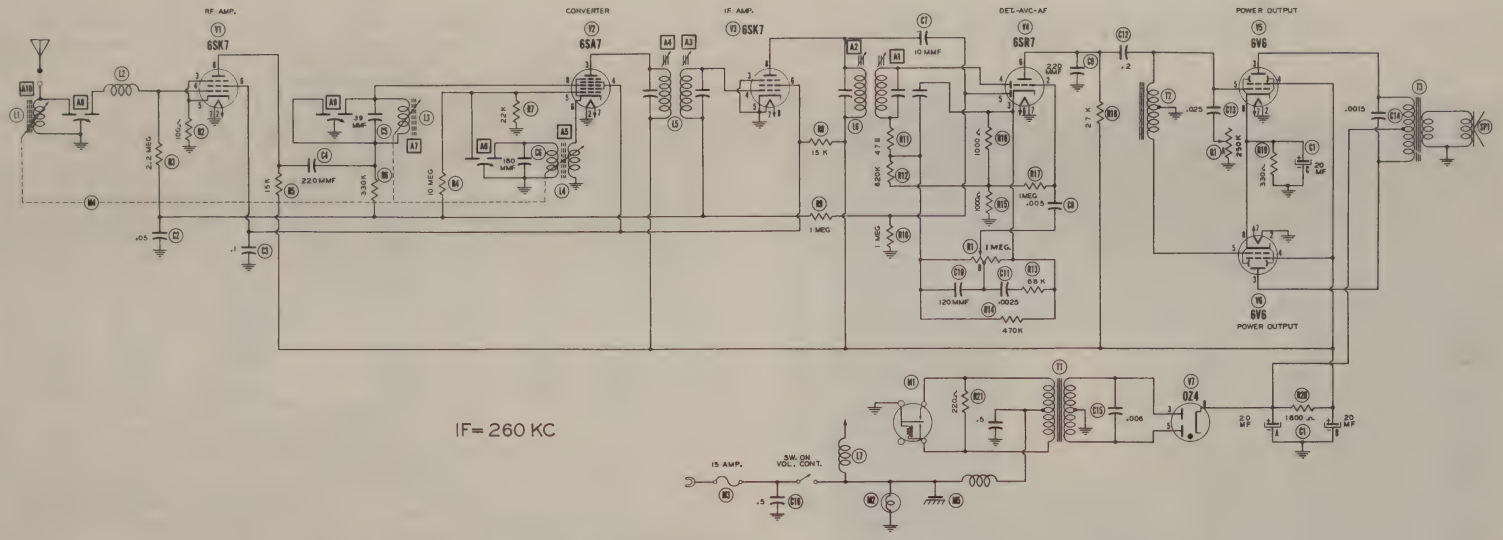
SET 104 FOLDER 4

BUICK MODEL 980868

CHASSIS—BOTTOM VIEW



BUICK MODEL 980868



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7	0V.	8VDC	.6VDC	-.2VDC	.6VDC	70VDC	0V.	130VDC
V 2	6SA7	0V.	0V.	210VDC	70VDC	8-7.6VDC	0V.	6VDC	-.3VDC
V 3	6SK7	0V.	8VDC	0V.	-.5VDC	0V.	70VDC	0V.	210VDC
V 4	6SR7	0V.	.5VDC	8VDC	-.2VDC	2.8VDC	115VDC	0V.	6VDC
V 5	6V6GT	0V.	0V.	255VDC	210VDC	0V.	0V.	6VDC	14VDC
V 6	6V6GT	0V.	0V.	255VDC	210VDC	0V.	0V.	6VDC	14VDC
V 7	0Z4	0V.	0V.	286VAC	0V.	286VAC	0V.	0V.	360VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7	0Ω	1Ω	100Ω	4 Meg.	100Ω	117KΩ	0Ω	117KΩ
V 2	6SA7	0Ω	0Ω	11.8KΩ	117KΩ	23KΩ	1.4Ω	1Ω	3 Meg.
V 3	6SK7	0Ω	1Ω	0Ω	1.8 Meg.	0Ω	117KΩ	0Ω	11.8KΩ
V 4	6SR7	0Ω	1 Meg.	3KΩ	1 Meg.	300KΩ	139KΩ	0Ω	1Ω
V 5	6V6GT	Inf.	0Ω	1190Ω	11.8KΩ	1000Ω	0Ω	1Ω	330Ω
V 6	6V6GT	Inf.	0Ω	1190Ω	11.8KΩ	1000Ω	Inf.	1Ω	330Ω
V 7	0Z4	0Ω	Inf.	300Ω	Inf.	300Ω	Inf.	Inf.	300KΩ

† MEASURED FROM PIN 8 OF V7.

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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CHEVROLET
MODEL 986388

CHEVROLET
MODEL 986388

CHEVROLET MODEL 986388

TRADE NAME	Chevrolet, Model 986388
MANUFACTURER	Chevrolet Motor Div. General Motors Corp., Detroit 2, Michigan
TYPE SET	Battery Operated Custom Built Automotive Superheterodyne Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AV6 DET-AVC-AF, 6V6GT Power Output, 0Z4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 5.8 Amp. at 6 Volts DC
TUNING RANGE—BROADCAST	550-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The 68MMF capacitor used as a dummy antenna is a critical value. The use of any other size capacitor will result in inaccurate alignment.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

Before beginning step 2 set the oscillator (center) slug, so rear of slug is 1 25/32" from the mounting end of the coil. This setting is made with the dial set against the high frequency stop.

With the receiver set to receive a 1000KC signal from the signal generator, the pointer adjustment screw should be set so the pointer is exactly 3/16" below the 1000KC calibration on the dial. This screw is located on the connecting link between the core guide bar and the pointer assembly. It should be adjusted while looking directly at the dial. This adjustment sets the correct relationship between the pointer and the dial when the set is installed in the car.

The antenna trimmer A7 should be retuned for maximum after the set is installed. For this adjustment use a weak station near 1400KC.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V2). Low side to chassis.	260KC (400 ∿ Mod.)	550KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	68MMF	High side to antenna connector. Low side to chassis.	1615KC (400 ∿ Mod.)	Against high frequency stop	"	A5	"
3.	68MMF	"	"	"	"	A6, A7	"
4.	68MMF	"	1400KC	Tune for max. output	"	A8, A9	Adjust for maximum output. Repeat step 3.

PUSH BUTTON ADJUSTMENT

To set push buttons pull the button down and out. Tune manually for the desired ststion. Push button all the way in. Repeat this proceedure for each push button.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	5252	6BA6	7BK	
V2	Converter	5253	6BE6	7CH	
V3	IF Amp.	5252	6BA6	7BK	
V4	DET.-AVC-AF	5262	6AV6	7BT	
V5	Power Output	5241	6V6GT	7AC	
V6	Rectifier	5003	0Z4	4R	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CHEVROLET PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	400	M908	AF44J4A		UP2245C		EL-322	■ Filter
B	20	400							▲ Filter
C	20	25							Output Cathode
C2	.05	400	E503	P488-05		PTE4S5		TM-15	Decoupling
C3	10	500	G100	1468-00001	D2-10	5W5Q1	GP1K-10	MS-41	RF Coupling
C4	.05	200	E503	P288-05		PTE4S5		TM-15	AVC Filter
C5	39	500	G390	1469-00004	D2-39	5R5Q4	NPOL-39	MS-44	Fixed Trimmer
C6	180		7257424	SI180JN150			N150M-180		Fixed Trimmer
C7	.005	600	E502	P688-005	D6-502	PTE6D5	811-005	TM-25	Audio Coupling
C8	.03	400	E303	P488-03		PTE6S3		TM-13	Tone Compensation
C9	.005	600	E502	P688-005	D6-502	PTE6D5	811-005	TM-25	Tone Compensation
C10	.002	600	E202	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Tone Compensation
C11	.002	600	E202	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C12	220	500	G221	1468-00025	D6-221	5W5T25	GP2K-220	1FM-325	Output Grid
C13	.004	800	H402	P1688-004		PTE16D4		MB-24	Output Plate
C14	.006	1600	H602	P1688-006		PTE16D6		MB-26	Buffer
C15	.5	100	E504	P288-5				68P20	Hash Filter
C16	.5	100	E504	P288-5				68P20	Hash Filter

CONTROLS

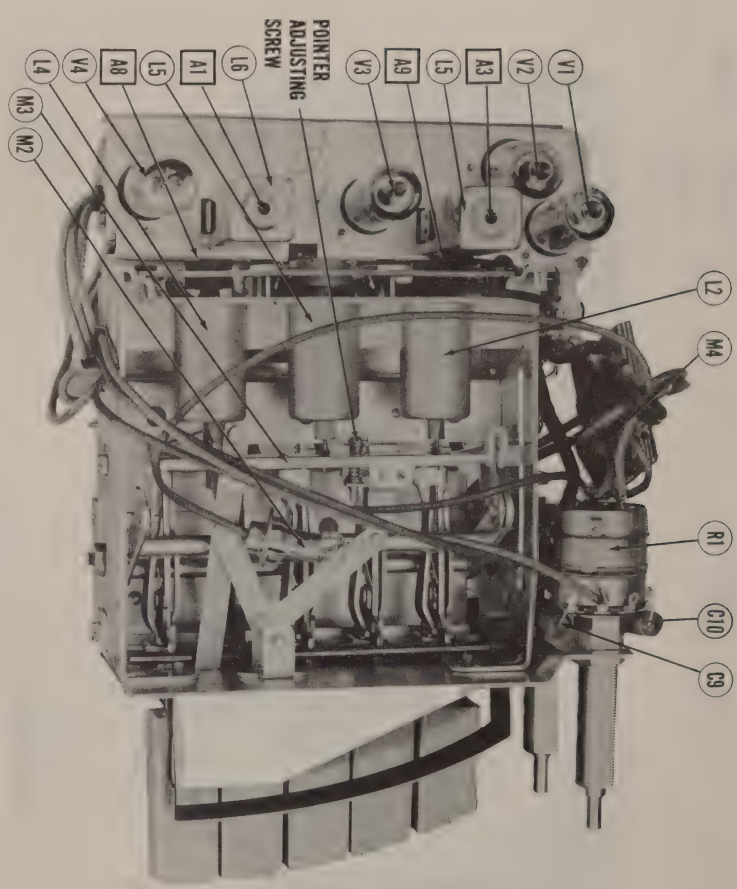
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHEVROLET PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	Switch		7258084				Tone switch-front
B	300KΩ	½	Not Req.				Volume control and switch-rear
R2	1000Ω	1	7242204				Sensitivity control-Wire Wound

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHEVROLET PART No.	IRC PART No.	IDENTIFICATION CODES
R3	* 2.2 Meg.	⅓	A225	BTS-2.2 Meg.	AVC Network
R4	68Ω	⅓	1215558	BW-½-68	RF Amp. Cathode
R5	15KΩ	1	B153	BTA-15K	Screen Dropping
R6	15KΩ	2	C153	BT-2-15K	RF Amp. Plate
R7	330KΩ	⅓	A334	BTS-330K	AVC Network
R8	22KΩ	⅓	A223	BTS-22K	Osc. Grid
R9	1 Meg.	⅓	A105	BTS-1 Meg.	AVC Network
R10	560KΩ	⅓	A564	BTS-560K	Diode Filter
R11	6.8 Meg.	⅓	A685	BTS-6.8 Meg.	AF Amp. Grid
R12	220KΩ	⅓	A224	BTS-220K	AF Amp. Plate
R13	220KΩ	⅓	A224	BTS-220K	Output Grid
R14	270Ω	1	B271	BW-1-270	Output Cathode
R15	1800Ω	2	*	BW-2-1800	Filter
R16	220Ω	1	B221	BW-1-220	Transformer Primary Shunt

* Replace with one 2700Ω, 1 watt #C272 resistor one one 5600Ω, ½ watt #B562 in parallel.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	CHEVROLET PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6VDC @ 4.2A	540VCT .085ADC			7258747		P-3988	VT-5

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CHEVROLET PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	6200Ω	4.3Ω	370Ω	.4Ω	7258009	A-3877 ①	A-3019 ①	RG-303 ①	① Drill new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CHEVROLET PART No.	VIKING PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.				
	PM	4.5Ω	6111	6919	69A2	
SP2	CONE DIA.	V. C. DIA.				
	6" x 6"	1"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	CHEVROLET PART No.	MEISSNER PART No.
L1	Ant. Loading	1Ω		7258502	
L2	Ant. Coil	11.5Ω		7258914	
L3	Ant. Hash Choke	5.2Ω		7240251	
L4	RF Coil	11.5Ω		7258914	
L5	Osc. Coil	1.5Ω	5Ω	7258911	
L6	1st IF	34Ω	33Ω	1216725	16-6752
L7	2nd IF	34Ω	33Ω	1218726	16-6754
L8	Hash Choke	0Ω		7258743	
L9	Hash Choke	0Ω		7241708	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				CHEVROLET PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Int.	6VDC	115 ~	8542	A-100	C-90	5300	Original part #7239124

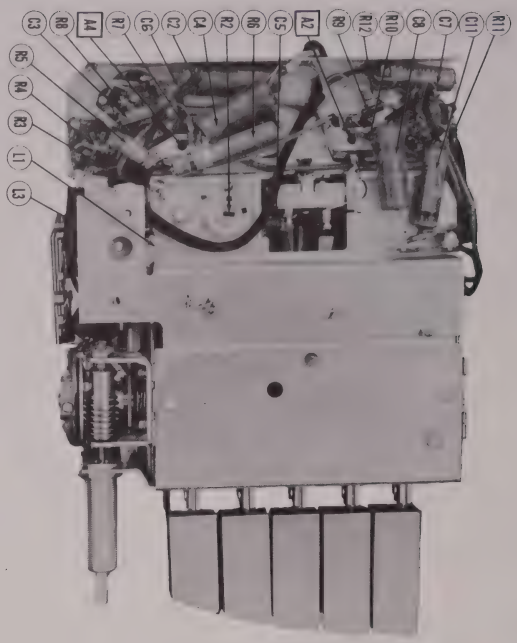
DIAL LIGHTS

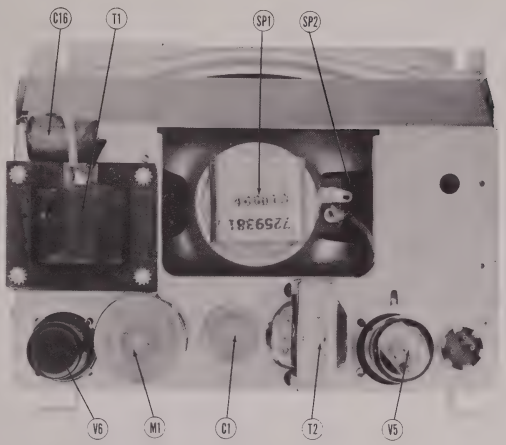
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					CHEVROLET PART No.		
M2	Bayonet	7.5	.2	White	51		Type #51

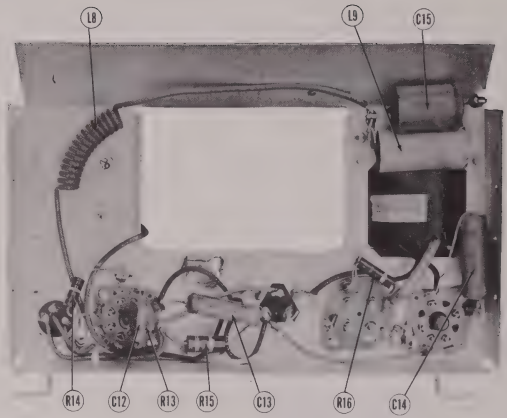
MISCELLANEOUS

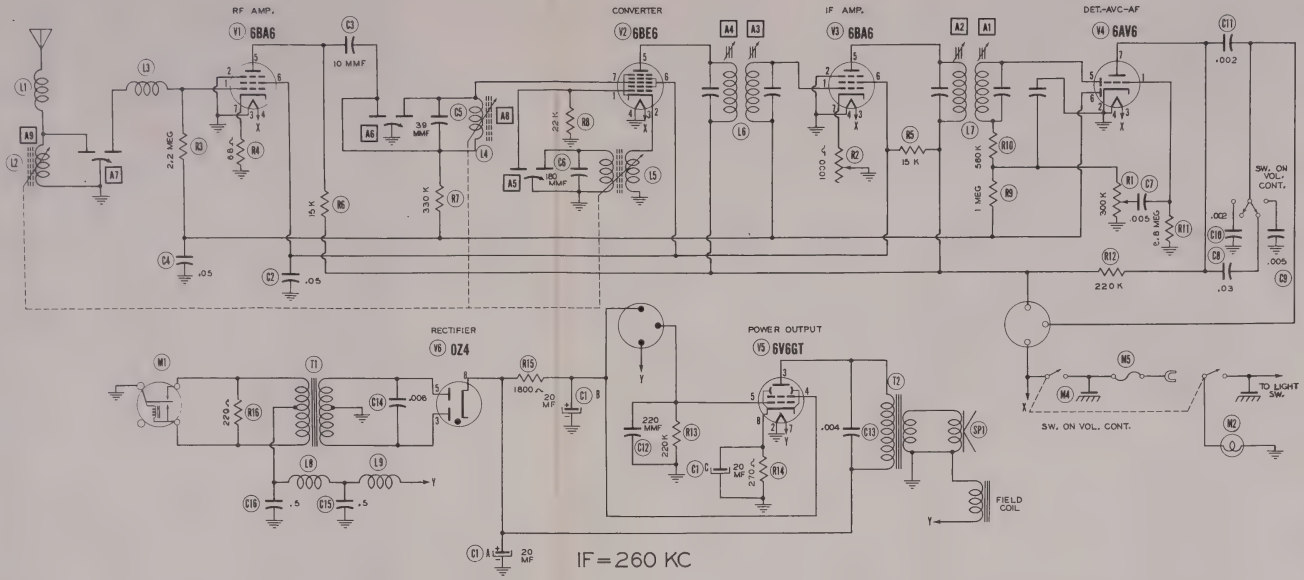
ITEM No.	PART NAME	CHEVROLET PART No.	NOTES
M3	Tuning Assembly		
M4	Spark Plate	7258332	Dual Unit
A5	Dual Trimmer	7242454	Osc. Adj.
A6			RF Adj.
A7			Ant. Adj.
	Trimmer	7258000	
	Dial	7258002	
	Pointer Assembly	7258059	
	Knob	7258880	Control
	Knob	7258879	Dummy
	Knob	7258882	Tone

CHASSIS—BOTTOM VIEW









VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	-.2VDC	0V.	0V.	6.3VDC	125VDC	75VDC	.4VDC	
V 2	6BE6	1-5.6VDC	.1VDC	6.3VDC	0V.	210VDC	75VDC	-.1VDC	
V 3	6BA6	-.4VDC	0V.	6.3VDC	0V.	210VDC	75VDC	3.5VDC 0V.	
V 4	6AV6	-.4VDC	0V.	6.3VDC	0V.	-.3VDC	-.4VDC	95VDC	
V 5	6V6GT	0V	0V.	250VDC	210VDC	0V.	0V.	6.3VDC	11VDC
V 6	0Z4	0V.	0V.	290VAC	0V.	290VAC	0V.	0V.	260VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	3.5 Meg.	0Ω	0Ω	1Ω	†17KΩ	†17KΩ	68Ω	
V 2	6BE6	22KΩ	1.5Ω	1Ω	0Ω	†1.8KΩ	†17KΩ	1.6 Meg.	
V 3	6BA6	1.3 Meg.	0Ω	1Ω	0Ω	†1.8KΩ	†17KΩ	1000Ω 0Ω	
V 4	6AV6	6.8 Meg.	0Ω	1Ω	0Ω	800KΩ	1.3 Meg.	†220KΩ	
V 5	6V6GT	Inf.	0Ω	†370Ω	†1.8KΩ	220KΩ	0Ω	2Ω	270Ω
V 6	0Z4	0Ω	Inf.	300Ω	Inf.	300Ω	Inf.	Inf.	300KΩ

† MEASURED FROM PIN 8 OF V6.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PHOTOFACT* Folder

CROSLEY MODEL
10-419MU

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CROSLEY MODEL
10-419MU

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Date 8/50 Set No. 104—Folder No. 6

CROSLEY
MODEL 10-419MU

TRADE NAME	Crosley, Model 10-419MU
MANUFACTURER	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET	TV-FM Receiver
TUBES	Twenty Two
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.6 Amp. at 117 Volts AC
TUNING RANGE	44-216MC (Continuous Tuning)

INDEX

Alignment Instructions 6
Block Diagram 13
Disassembly Instructions 13
Miscellaneous Adjustments 10
Parts List and Description 14, 15, 16
Photographs
Cabinet-Rear View 6
Capacitor Identification 11, 18
Photographs (continued)
Chassis-Top View 3, 7
RF Tuner 7
Resistor Identification 12, 18
Trans., Inductor and Alignment Identification 4, 9
Schematic 2
Tube Placement Chart 5
Voltage and Resistance Measurements 8

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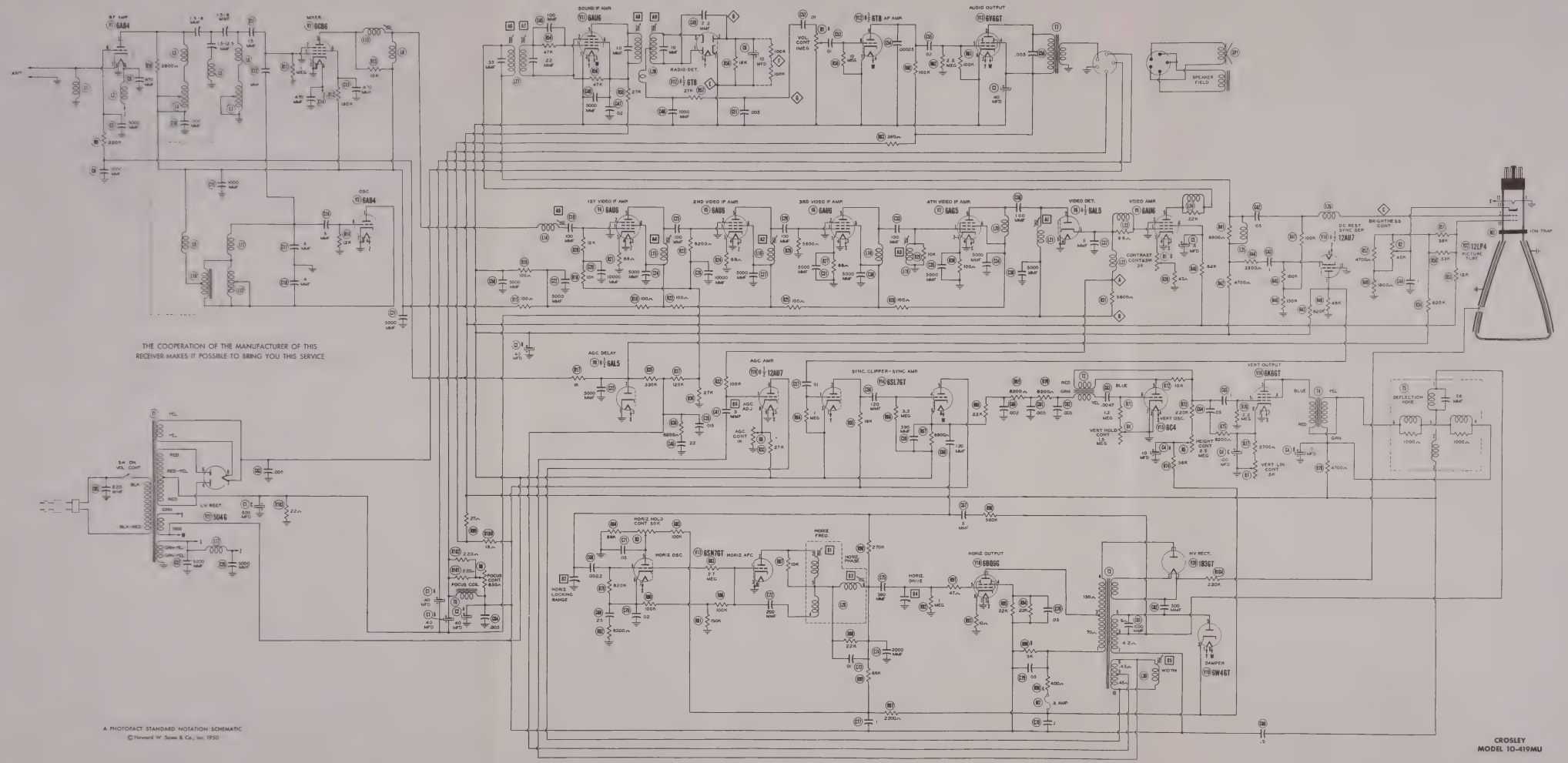
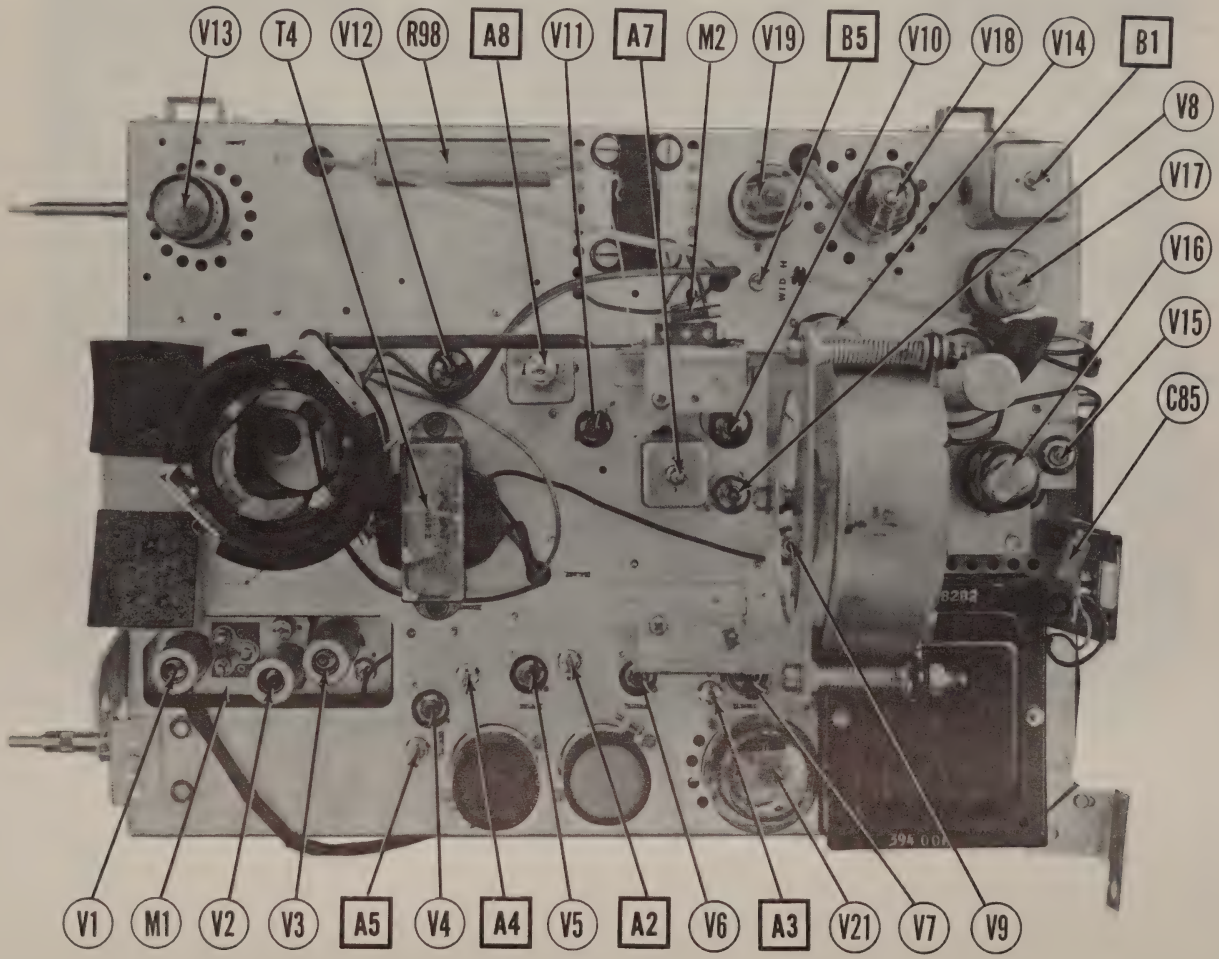
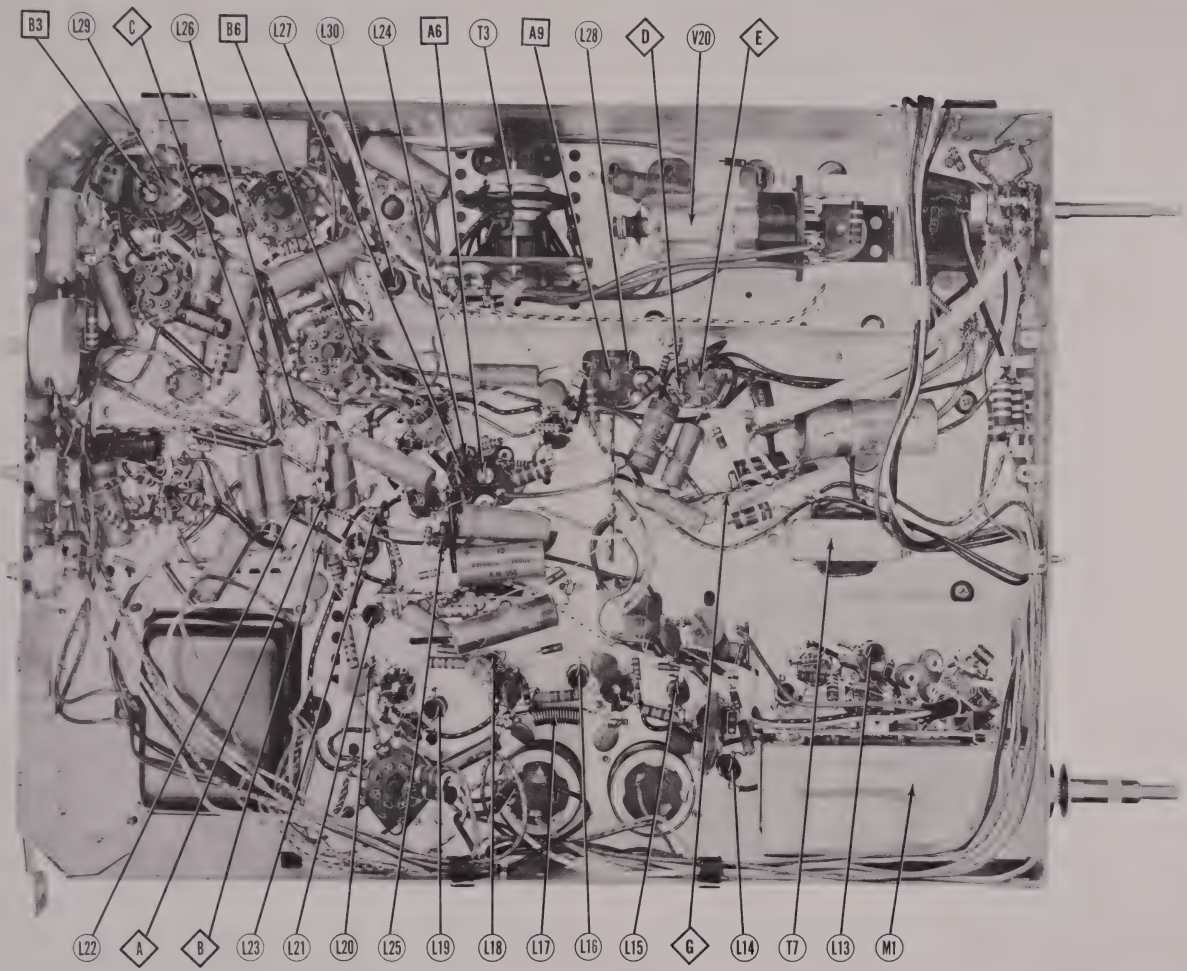

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1950
CROSLEY
MODEL 10-419MU

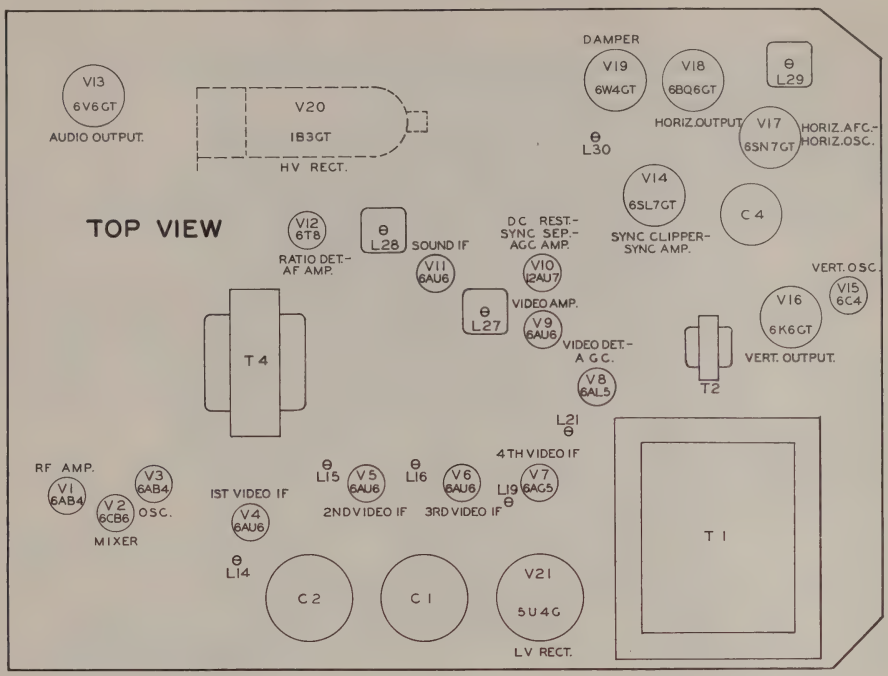
CROSLEY
MODEL 10-419MU

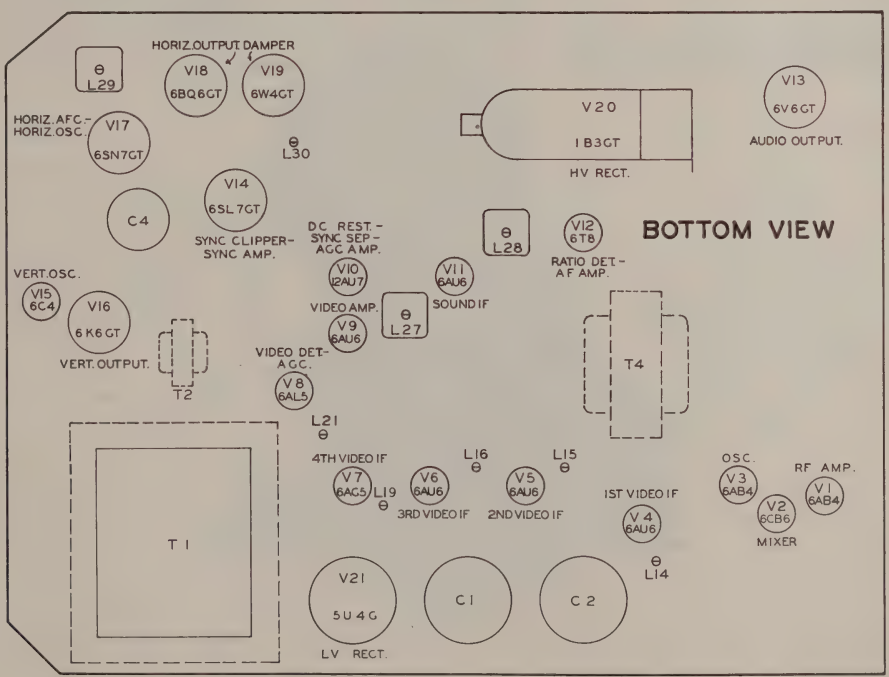


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the Horizontal Output tube (V18) from its socket.

VIDEO IF ALIGNMENT

Connect lead from junction of R23 and C26 to negative terminal of C1.
During Video IF Alignment the common lead of VTVM is connected to approximately -4 volts with respect to chassis.
Avoid grounding the VTVM case.
Remove local oscillator tube (V3) from its socket to prevent erroneous indications.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V4). Low side to chassis.	Not used	26.65MC (Unmod.)	Any	Use VTVM. DC Probe to Point (A). Common to Point (B).	A1, A2	Adjust for maximum deflection. Attenuate marker generator to maintain a 3.5 volt reading.
2.	.01MFD	"	"	23.7MC (Unmod.)	Any	"	A3, A4	"
3.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	24MC (10MC SWP)	21.9MC 22.9MC 26.4MC	"	Vert. Amp. to Point (C). Low side to chassis.	A5	Adjust to place 26.4MC marker 60% on response curve as shown in figure 1 center portion of curve as flat as possible.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from Point D to Point E . The junction of these two resistors is alignment Point (G) as shown on the schematic.
Turn contrast control maximum clockwise. During Sound IF alignment the common lead of VTVM is connected to approximately 140 volts, with respect to chassis.
Avoid touching or grounding VTVM case.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V9). Low side to chassis.	4.5MC (450KC Sweep)	Any	DC Probe to Point (D). Common to Point (E).	A6, A7	Adjust for maximum deflection.
5.	.01MFD	"	"	"	DC Probe to Point (F). Common to Poing (G).	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V9). Low side to chassis.	4.5MC (450KC Sweep)	4.5MC	Any	Vert. Amp. to Point (D). Low side to chassis.	A6, A7, A8	Disconnect stabilizer capacitor C6. Adjust for maximum amplitude and symmetry as per figure 2.
7.	.01MFD	"	"	"	"	Vert. Amp. to Point (F). Low side to chassis.	A9	Reconnect capacitor C6. Adjust A9 to place 4.5MC at center of crossover lines as per figure 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

THE RF TUNER PORTION OF THIS RECEIVER HAS BEEN PROPERLY ALIGNED AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS PORTION SHOULD NOT BE REQUIRED IN THIE FIELD.

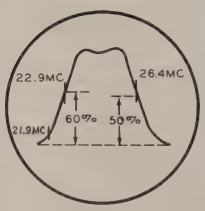


FIG.1

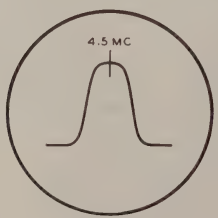


FIG. 2

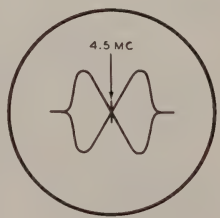
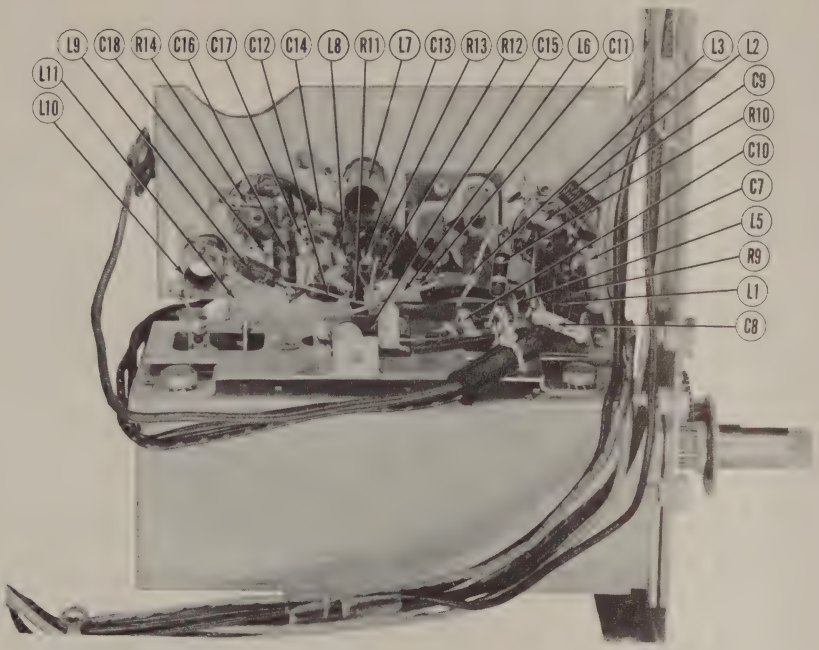
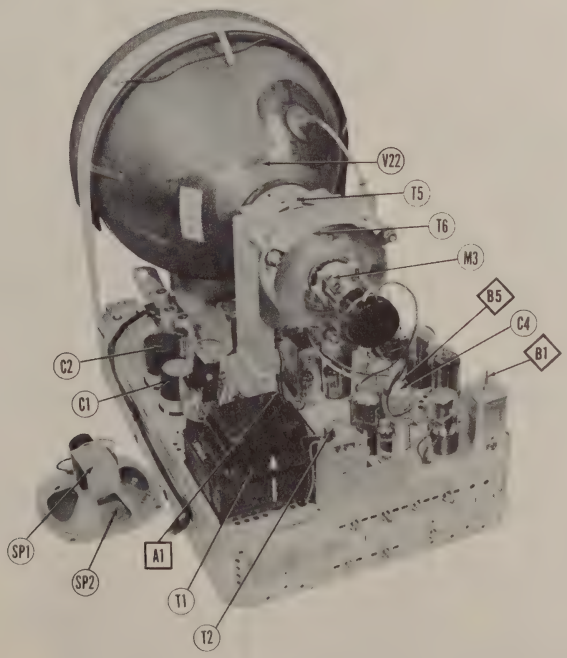


FIG. 3



RF TUNER



CHASSIS-TOP VIEW

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AB4	130VDC	0V.	0V.	6.3VAC	6.3VAC	-.5VDC	0V.		
V 2	6CB6	-2VDC	0V.	0V.	6.3VAC	130VDC	55VDC	0V.		
V 3	6AB4	130VDC	0V.	0V.	6.3VAC	0V.	§-5VDC	0V		
V 4	6AU6	0V.	0V.	6.3VAC	0V.	130VDC	130VDC	.5VDC		
V 5	6AU6	-.4VDC	0V.	6.3VAC	0V.	125VDC	125VDC	.6VDC		
V 6	6AU6	-.1VDC	0V.	6.3VAC	0V.	125VDC	125VDC	.7VDC		
V 7	6AG5	0V.	1.1VDC	6.3VAC	0V.	125VDC	125VDC	1.1VDC		
V 8	6AL5	0V.	-6VDC	6.3VAC	0V.	-1.6VDC	0V.	-.3VDC		
V 9	6AU6	-1.6VDC	0V.	6.3VAC	0V.	135VDC	300VDC	4.2VDC		
V 10	12AU7	6.5VDC	0V.	.9VDC	6.3VAC	6.3VAC	-2VDC	-3.3VDC	0V. 4.4VDC	0V.
V 11	6AU6	†-.4VDC	†0V.	†0V.	†6.3VAC	†60VDC	†60VDC	†0V.		
V 12	6T8	†-.6VDC	†-1VDC	†-.6VDC	†0V.	†6.3VAC	†0V.	†0V.	†-.6VDC	†110VDC
V 13	6V6GT	†0V.	†6.3VAC	†180VDC	†200VDC	†-4.4VDC	†110VDC	†0V.	†0V.	
V 14	6SL7GT	†-1VDC	†180VDC	†0V.	†0V.	†220VDC	†1.5VDC	†6.3VAC	†0V.	
V 15	6C4	400VDC 165VDC	0V.	0V.	6.3VAC	400VDC 165VDC	-18VDC -13VDC	0V.		
V 16	6K6GT	0V.	6.3VAC	385VDC	385VDC	0V.	0V.	0V.	31VDC 45VDC	
V 17	6SN7GT	-65VDC	260VDC	0V.	-16VDC	240VDC 140VDC	-24VDC	6.3VAC	0V.	
V 18	6BQ6GT	330VDC	6.3VAC	260VDC	175VDC	-13VDC	-13VDC	0V.	1VDC	TOP CAP *
V 19	6W4GT	0V.	460VDC	470VDC	0V.	360VDC	360VDC	†6.3VAC	†0V.	
V 20	1B3GT	* DO NOT MEASURE.								
V 21	5U4G	0V.	380VDC	360VDC	350VAC	0V.	350VAC	6.3VAC	380VDC	
V 22	12LP4A	0V.	.3VDC	PIN 10 230VDC	PIN 11 16VDC	60VDC	PIN 12 6.3VAC			

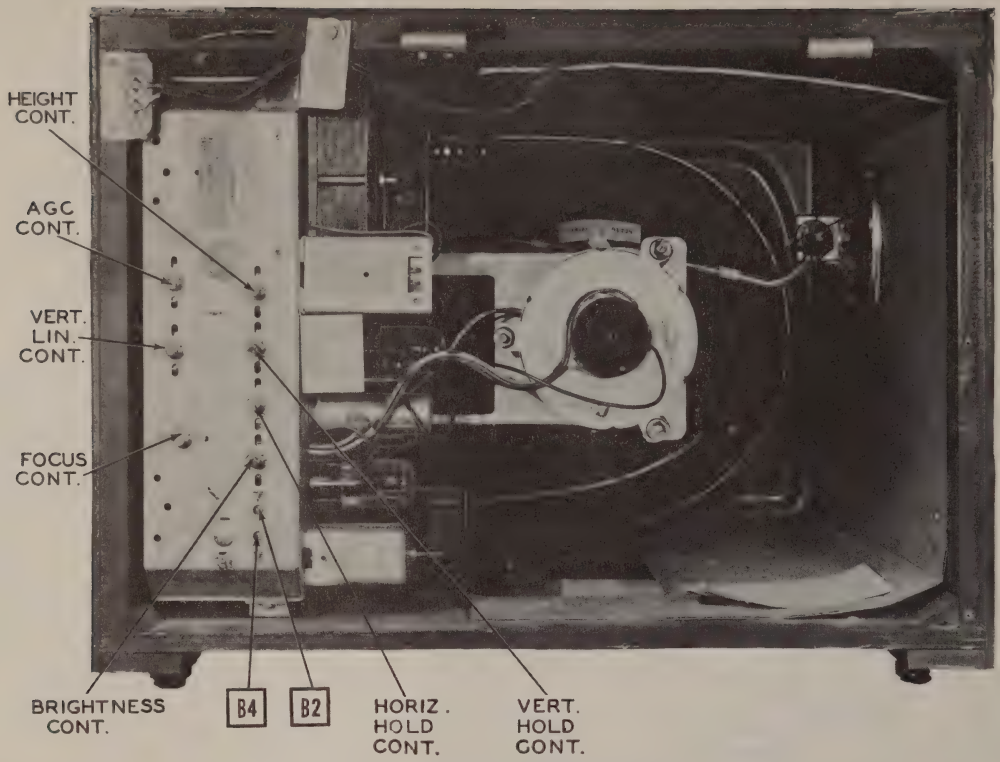
§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.
† MEASURED FROM PIN 8 OF V13.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AB4	†200Ω	Inf.	0Ω	.1Ω	.1Ω	560KΩ	0Ω		
V 2	6CB6	1 Meg.	0Ω	0Ω	.1Ω	†200Ω	†150KΩ	0Ω		
V 3	6AB4	†200Ω	Inf.	0Ω	.1Ω	Inf.	12KΩ	0Ω		
V 4	6AU6	55KΩ	0Ω	.1Ω	0Ω	†200Ω	†200Ω	68Ω		
V 5	6AU6	35KΩ	0Ω	.1Ω	0Ω	†300Ω	†300Ω	68Ω		
V 6	6AU6	5.6KΩ	0Ω	.1Ω	0Ω	†400Ω	†400Ω	68Ω		
V 7	6AG5	.5Ω	100Ω	.1Ω	0Ω	†500Ω	†500Ω	100Ω		
V 8	6AL5	0Ω	22Ω	.1Ω	0Ω	5.6KΩ	0Ω	320KΩ		
V 9	6AU6	5.6KΩ	0Ω	.1Ω	0Ω	†4.7KΩ	▲82KΩ	2000Ω		
V 10	12AU7	47KΩ	0Ω	300KΩ	.1Ω	.1Ω	135KΩ	105KΩ	900Ω 6Ω	0Ω
V 11	6AU6	†47KΩ	†0Ω	†0Ω	†.1Ω	▲27KΩ	▲27KΩ	†0Ω		
V 12	6T8	†Inf.	†18KΩ	†Inf.	†0Ω	†.1Ω	†Inf.	†0Ω	†10 Meg.	▲100KΩ
V 13	6V6GT	Inf.	†.1Ω	▲800Ω	▲420Ω	†100KΩ	100KΩ	†0Ω	†0Ω	
V 14	6SL7GT	†1 Meg.	▲18KΩ	†0Ω	†3.3Meg.	▲140Ω	†6.8KΩ	†.1Ω	†0Ω	
V 15	6C4	▲275KΩ ▲2.7 Meg	Inf.	0Ω	.1Ω	▲275KΩ ▲2.7 Meg.	1.2 Meg. 2.7 Meg.	0Ω		
V 16	6K6GT	0Ω	.1Ω	▲5.5KΩ	▲5.5KΩ	2.2 Meg.	Inf.	0Ω	7.7KΩ 2.7KΩ	
V 17	6SN7GT	250KΩ	▲65KΩ	0Ω	850KΩ	▲50KΩ ▲55KΩ	250KΩ	.1Ω	0Ω	
V 18	6BQ6GT	540KΩ	.1Ω	340KΩ	▲11KΩ	1 Meg.	1 Meg.	0Ω	10Ω	TOP CAP ▲3.1KΩ
V 19	6W4GT	Inf.	▲5.5KΩ	▲3.5KΩ	Inf.	▲140Ω	▲140Ω	†.1Ω	†0Ω	
V 20	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ▲3.2KΩ
V 21	5U4G	Inf.	22KΩ	22KΩ	60Ω	Inf.	60Ω	.1Ω	22KΩ	
V 22	12LP4A	0Ω	250KΩ	PIN 10 ▲12KΩ	PIN 11 5KΩ	1.8KΩ	PIN 12 .1Ω			

▲ MEASURED FROM PIN 2 OF V21.
† MEASURED FROM PIN 8 OF V13.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



CABINET-REAR VIEW

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL OSCILLATOR ADJUSTMENT

Turn on set and tune in a TV station preferably a test pattern. Connect a short across terminals 5 and 6 of L29. Turn Horizontal Hold Control to maximum clockwise position. Adjust Horizontal Frequency slug (B1) until Horizontal blanking signal appears in the picture as a single vertical bar.

Turn Horizontal Hold control fully counter-clockwise and momentarily interrupt signal by turning to another channel and bars present in the picture. If necessary adjust Horizontal local trimmer (B2) until 7 to 9 bars appear, Repeat adjustments of B1 and B2 until proper results are obtained.

HORIZONTAL WAVE FORM ADJUSTMENT

Remove short from terminals 5 and 6 of L29. Connect vertical amplifier input of an oscilloscope thru a 10MMF capacitor to terminal 5 of L29. Adjust Horizontal Wave Form Adjustment (B3) until the broad and sharp peaks on the oscilloscope wave form are of equal amplitude as shown in figure 4.

HORIZONTAL DRIVE AND WIDTH ADJUSTMENTS

Adjust Horizontal Drive trimmer (B4) clockwise as far as possible without crowding the right side of the picture.
Adjust Horizontal Width slug (B5) until picture is of proper width. Readjustment of B4 may be necessary for optimum results.

AGC NEUTRALIZING ADJUSTMENT

With no signal input to receiver adjust AGC neutralizing capacitor (B6) by varying wire spacing until a VTVM connected across C39 shows no change in voltage as a .1MFD capacitor is intermittently connected between pin 7 of V10 and chassis.

AGC CONTROL ADJUSTMENT

Tune in a weak TV station. Turn contrast control maximum clockwise. Adjust AGC control (R6) until receiver begins to overload.

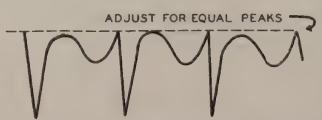
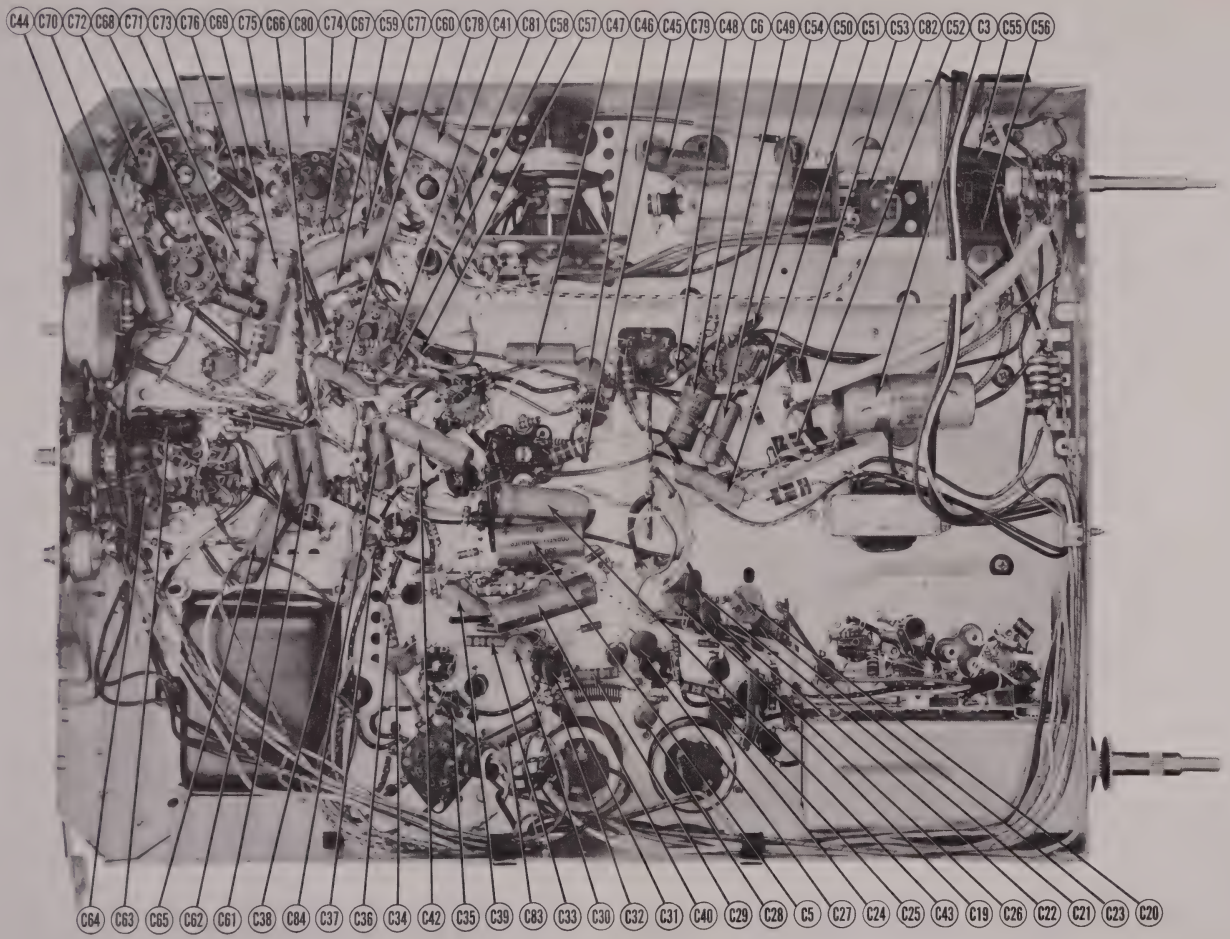
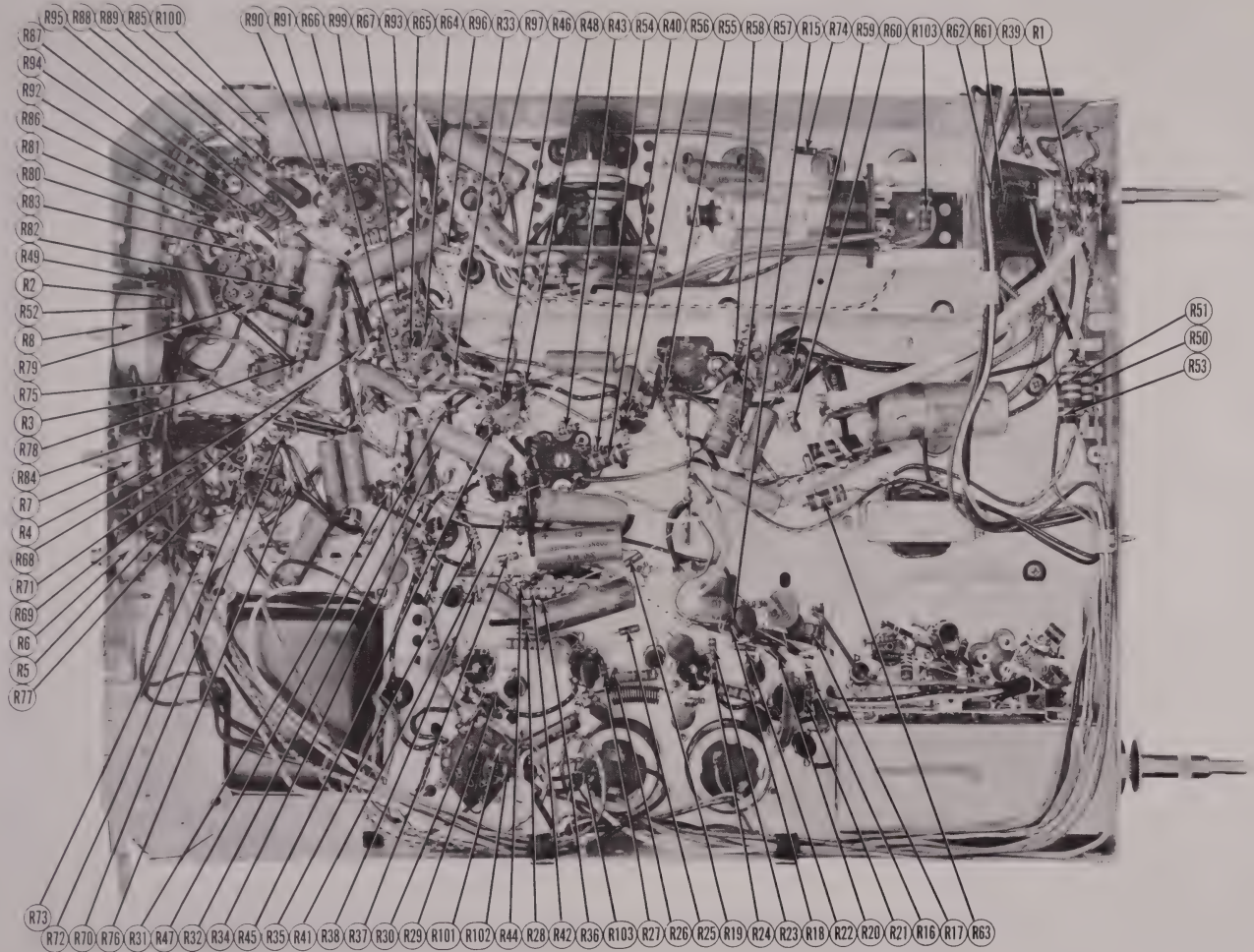


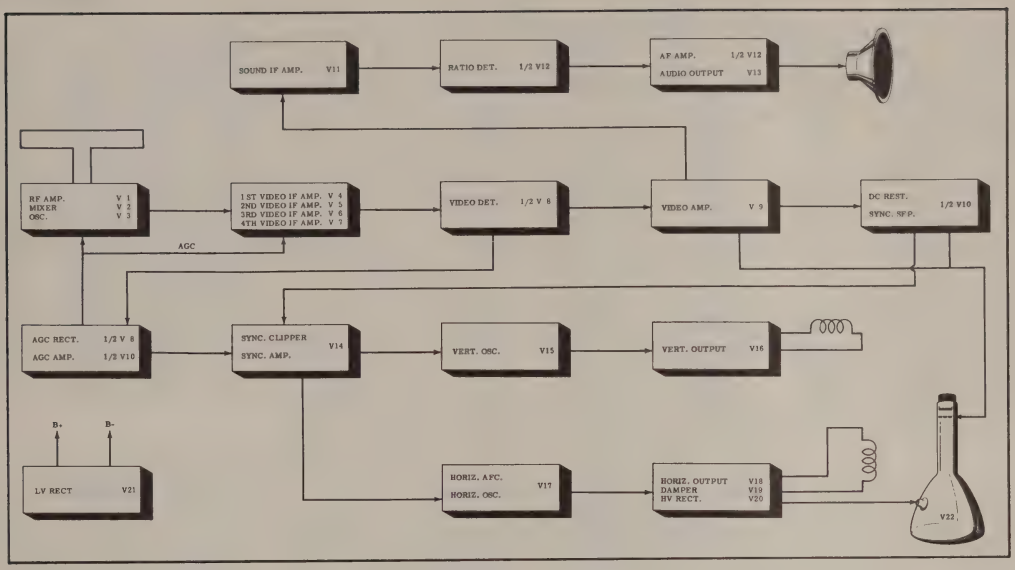
FIG. 4



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



BLOCK DIAGRAM

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Disconnect safety plug, remove five 1/4" hex head screws holding rear cover.
3. Remove rear cover hinge upward.
4. Disconnect built in antenna.
5. Remove two screws holding antenna terminal strip to side of cabinet.
6. Remove two 5/16" hex head screws, and two 7/16" hex head screws holding set in cabinet.
7. Remove two hex nuts holding speaker in cabinet. Remove speaker.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AB4	6AB4	5CE	
V2	Mixer	6CB6	6CB6	7CM	
V3	Oscillator	6AB4	6AB4	5CE	
V4	1st Video IF	6AU6	6AU6	7BK	
V5	2nd Video IF	6AU6	6AU6	7BK	
V6	3rd Video IF	6AU6	6AU6	7BK	
V7	4th Video IF	6AG5	6AG5	7BD	
V8	Video Det -AGC Delay	6AL5	6AL5	6BT	
V9	Video Amp.	6AU6	6AU6	7BK	
V10	AGC Amp.-DC Rest.-Sync. Sep	12AU7	12AU7	9A	
V11	Sound IF Amp.	6AU6	6AU6	7BK	
V12	Ratio Det.-AF Amp.	6T8	6T8	9A	
V13	Audio Output	6V6GT	6V6GT	7AC	
V14	Sync. Clipper-Sync. Amp.	6SL7GT	6L7GT	8BD	
V15	Vert. Osc.	6C4	6C4	6BG	
V16	Vert. Output	6K6GT	6K6GT	7S	
V17	Hor. AFC-Hor. Osc	6S7GT	6S7GT	8BD	
V18	Hor. Output	6BQ6GT	6BQ6GT	6AM	
V19	Damper	6W4GT	6W4GT	6CG	
V20	HV Rectifier	1B3GT	1B3GT	3C	
V21	LV Rectifier	5U4G	5U4G	5T	
V22	Picture Tube	12LP4A	12LP4A	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	.40	475	B-147757	AF883C30R		UPEI1C223			▲ Filter
B	.60	475							■ Filter
C	500	10							▲ Bias Filter
C2A	4-4-40	475	B-148153	AF83-81	UP9BJ995		TVL-64		▲ Filter
B	40	250							▲ Decoupling
C3	40	300	B-146725	PRS450/40	BR4335			TVA-94	Decoupling
C4A	100	475	B-146723	AF2220A	UP6C2197		TVL-2750	TVA-1310	■ Vert. Osc. Decoup. ▲ Vert. Output Decoup. Vert. Output Cath. Byp
B	10	475							
C	100	25							
C5	4	350	B-147047	PRS350/4	BR445			TVA-87	Hor. Amp. Screen Byp.
C6	10	25	B-147758	PR525/10	BR102A			TVA-5	Stabilizing Cap.
C7	1		1-137727-48	GP500M	D6-502		811-005		AGC Filter
C8	1000		C-137727-8	GP1000M	D6-102		GP2L-001		AGC Filter
C9	470		C-137727-104	GP470M	D6-471		GP2K-470		RF Fil. Byp.
C10	1000		C-137727-8	GP1000M	D6-102		GP2L-001		RF Bypass
C11	15		C-137727-107	C15SKNPO	D2-15		NPOR-15		RF Coupling
C12	1		W-137398-2		D2-1				Osc. Coupling
C13	470		C-137727-104	GP470M	D6-471		GP2K-470		Mixer Screen Bypass
C14	470		C-137727-104	GP470M	D6-471		GP2K-470		Mixer Fil. Bypass
C15	1000		C-137727-8	GP1000M	D6-102		GP2L-001		RF Bypass
C16	5		C-137727-103	C15SN500			N500K-5		Osc. Grid Cap.
C17	3		C-137727-106	C3SKN330J			N330K-6		Fixed Trimmer
C18	4		C-137727-105	C4SKN330J			N330K-4		Fixed Trimmer
C19	100		C-137727-108	GP100M	D6-101	5WS7I	GP1K-100	1FM-31	IF Coupling
C20	10000		C-144675-2	BPD-10	D6-103	PTE4S1	811-01	36C1	AGC Filter
C21	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	RF Bypass
C22	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	RF Bypass
C23	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	AGC Filter
C24	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	1st V. IF Decoup.
C25	100		C-137727-108	GP100M	D6-101	5WS7I	GP1K-100	1FM-31	IF Coupling
C26	10000		C-144675-13	BPD-10	D6-103	PTE4S1	811-01	36C1	AGC Filter
C27	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	2nd V. IF Decoup.
C28	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	2nd V. IF Fil. Byp.
C29	100		C-137727-108	GP100M	D6-101	5WS7I	GP1K-100	1FM-31	IF Coupling
C30	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	3rd V. IF Decoup.
C31	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	3rd V. IF Cath. Byp.
C32	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	3rd V. IF Fil. Byp.
C33	100		C-137727-108	GP100M	D6-101	5WS7I	GP1K-100	1FM-31	IF Coupling
C34	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	4th V. IF Decoup.
C35	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	4th V. IF Cath. Byp.
C36	100		C-137727-108	GP100M	D6-101	5WS7I	GP1K-100	1FM-31	IF Coupling
C37	5		C-137727-107	C5PSK	D2-4.7	5WV9V3	GP1K-5	MS-53	V. Diode Filter
C38	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	RF Bypass
C39	.015	400	3900I-14	P488-015		PTE8S15		TM-12	AGC Filter
C40	.02	400	3900I-87	P488-22		GT4P25		TC-2	AGC Filter
C41	3		AW-147000						AGC Neutralizing
C42	.05	400	3900I-13	P488-05		PTE4S5		TM-15	Video Coupling
C43	.1	400	3900I-19	P488-1		PTE4P1		TM-1	Video Coupling
C44	.1	300	3900I-19	P288-1		PTE4P1		TM-1	Pic. Tube Cath. Byp.
C45	100		C-137727-108	GP100M	D6-101	5WS7I	GP1K-100	1FM-31	IF Coupling
C46	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	S. IF Decoupling
C47	.02	400	3900I-80	P488-02		PTE4S2		TM-2	S. IF Decoupling
C48	1000		C-137727-110	GP1000M	D6-102	1W5DI	GP2L-001	1FM-21	Diode Load Cap.
C49	1.2		B-137398-4		D2-2.2				Balancing
C50	5000		C-144675-2	BPD-5	D6-502	1D5D5	811-005	29C1	RF Bypass
C51	.005	600	3900I-11	P488-005	D6-502	PTE6D5	811-005	TM-25	De-emphasis
C52	.01	400	3900I-13	P488-01	D6-103	PTE4S1	811-01	TM-11	Audio Coupling
C53	.01	600	3900I-13	P488-01	D6-103	PTE4S1	811-01	TM-11	Audio Coupling
C54	.00025	600	3900I-73	1468-00025	D6-251	5WS7Z5	GP2K-250	1FM-325	AF Amp. Plate Bypass
C55	.02	400	3900I-80	P488-02		PTE4S2		TM-2	Audio Coupling
C56	.005	600	3900I-11	P488-005	D6-502	PTE6D5	811-005	TM-25	Output Plate Bypass
C57	.01	400	3900I-41	P488-01	D6-103	PTE4S1	811-01	TM-11	Sync. Coupling
C58	130	500	B-137498-17	1468-00015	D6-121	5WS7I5	GP2K-130	1FM-315	Sync. Coupling
C59	390	500	B-137498-28	1468-0004	D6-391	5WS7I	GP2K-390	1FM-34	Sync. Amp. Cath. Byp.
C60	.003	600	3900I-74	P668-002	D6-202	PTE6D2	GP2M-003	TM-32	Integrator Net.
C61	.005	600	3900I-11	P668-005	D6-502	PTE6D5	811-005	TM-25	Integrator Net.

PARTS LIST AND DESCRIPTIONS (CONT.)

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C62	.005	600	3900I-11	P688-005	D6-502	PTE6D5	811-005	TM-25	Integrator Net.
C63	.0047	600	3947B-39	P688-0047	D6-472	PTE6D5	GP2M-0047	TM-25	Vert. Osc. Grid Cap.
C64	.05	400	B-137498-6	P488-05		PTE4S5		TM-15	Vert. Discharge
C65	1	400	3900I-19	P488-1		PTE4P1		TM-1	Vert. Sweep Coupling
C66	120	500	B-137498-17	1468-00015	D6-121	5WS7I5	GP2K-120	1FM-315	Hor. Sync. Coupling
C67	.1	200	C-137727-103	GP5K	D2-4.7	5WS7Y5	GP1K-5	MS-55	Hor. Feedback
C68	.0022	600	3947T-37	P688-0022	D6-222	PTE5D2	GP2M-0022	TM-22	Hor. Sync. Coupling
C69	.25	200	3900I-87	P488-25		GT2P25		TC-2	AFC Filter
C70	.02	200	3900I-80	P488-02		PTE4S2		TM-12	AFC Filter
C71	.05	400	3900I-17	P488-05		PTE4S5		TM-15	Hor. AFC Plate Byp.
C72	200	500	B-137498-47	1468-0002	D6-201	5WS7Z	GP2K-200	1FM-32	Hor. Osc. Grid Cap.
C73	.01	400	3900I-13	P488-01	D6-103	PTE4S1	811-01	TM-11	Fixed Trimmer
C74	.005	600	B-137498-48	1467-002	D6-202	1W5D	GP2M-002	1FM-22	Hor. Discharge
C75	390	500	B-137498-28	1469-0004	D6-391	5RS7Z	GP2K-390	MS-34	Hor. Sweep Coupling
C76	.05	200	3900I-17	P288-05		PTE4S5		TM-15	Hor. Output Screen
C77	.1	200	3900I-19	P288-1		PTE4P1		TM-1	Damper Filter
C78	.1	200	C-146434-5	P288-1		PTE4P1		TM-1	Damper Filter
C79	.05	200	C-146434-4	P288-05		PTE4S5		TM-15	Damper Filter
C80	.9	200	B-148317	P288-5		GT2P5		TC-5	Hor. Sweep Coupling
C81	1000	500	B-137498-52	1464-001	D6-102	1R5D1	GP2L-001	MS-21	Fixed Trimmer
C82	500	10K	B-137471-1	HV-500	TV1-501				HV Filter
C83	.005	600	3900I-11	P688-005	D6-502	PTE6D5	811-005	TM-25	RF Bypass
C84	.005	600	3900I-11	P688-005	D6-502	PTE6D5	811-005	TM-25	RF Bypass
C85	220	1500	W-160111						Line Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	1 Meg.	1		Concentrikit			Volume control-front
B	2000Ω	1	C-146898	BII-132 *	RTV-55	SBB-638-8	Contrast control-rear
C	Shaft End			E-187 *			Attach per instructions in "Concentrikit".
D	Switch			TE-1 *			Attach per instructions in "Concentrikit".
R2A	400Ω	1	B-146798	QU-123	AM-43-5	AN-31	Brightness control
B	Shaft		Not Req.	Not Req.	FKS 1/4"	AK-1	Attach to R2A per instructions
R3A	50KΩ		B-146797	QU-123	AM-44-5	AN-31	Horiz. hold control
B	Shaft		Not Req.	Not Req.	FKS 1/4"	AK-1	Attach to R3A per instructions
R4A	1.5 Meg.	1	B-146228	QU-138	AM-83-5	AN-75	Vert. hold control
B	Shaft		Not Req.	Not Req.	FKS 1/4"	AK-1	Attach to R4A per instructions
R5A	2.5 Meg.	1	B-148227	QU-329	AM-84-5	AN-83	Height control
B	Shaft		Not Req.	Not Req.	FKS 1/4"	AK-1	Attach to R5A per instructions
R6A	1000Ω	2	B-148038	QU-108	AM-9-5	AN-5	AGC control
B	Shaft		Not Req.	Not Req.	FKS 1/4"	AK-1	Attach to R6A per instructions
R7A	5000Ω	1	B-144260	QU-114	AM-19-5	AN-10	Vert. linearity control
B	Shaft		Not Req.	Not Req.	FKS 1/4"	AK-1	Attach to R7A per instructions
R8	650Ω	3	B-147083		RTV-25		Focus control-Wire Wound

* Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES: ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED
R9	220KΩ	1	3937A-53		AGC Network
R10	3900Ω	1	3937A-32	BTS-3900	RF Plate Coil Shunt
R11	1 Meg.	1	3937A-61		Mixer Grid
R12	150KΩ	1	3937A-51		Mixer Screen
R13	10KΩ	1	3937A-37		Mixer Plate Coil Shunt
R14	12KΩ	1	3937A-38		Osc. Grid
R15	1000Ω 20%	1	3937J-14		Decoupling
R16	100Ω 20%	1	3937J-14		Decoupling
R17	10000Ω 20%	1	3937J-33	BTS-1000	AGC Network
R18	10KΩ 20%	1	3937J-54	BTS-10K	AGC Network
R19	100Ω 20%	1	3937J-14		Decoupling Network
R20	10KΩ 5%	1	3937S-77		1st Video IF Grid
R21	68Ω	1	3937A-11		1st Video IF Cathode
R22	100Ω 20%	1	3937J-14		Decoupling Network
R23	82000Ω 5%	1	3937S-71		2nd Video IF Grid
R24	68Ω	1	3937A-11		2nd Video IF Cathode
R25	100Ω 20%	1	3937J-14		Decoupling Network
R26	56000Ω 5%	1	3937S-67		3rd Video IF Grid
R27	68Ω	1	3937A-11		3rd Video IF Cathode
R28	100Ω 20%	1	3937J-14		Decoupling Network
R29	10KΩ 5%	1	3937S-73		4th Video IF Coil Shunt
R30	300Ω	1	3937A-13		4th Video IF Grid
R31	58000Ω 5%	1	3937S-67	BTS-5800-5%	Video Det. Diode Load
R32	100KΩ	1	3937A-49	BTS-100K	AGC Amp. Grid
R33	27KΩ	1	3947A-130	BTA-27K	Voltage Divider
R34	820KΩ 5%	1	3937S-119	BTS-820K-5%	Voltage Divider
R35	330KΩ 5%	1	3937S-109	BTS-330K-5%	AGC Network
R36	27KΩ 5%	1	3937S-83	BTS-27K-5%	AGC Network
R37	120KΩ 5%	1	3937S-99	BTS-120K-5%	AGC Network
R38	8200Ω	1	3937A-36	BTS-8200	AGC Network
R39	47Ω	2	3937A-9		Video Amp. Cathode
R40	82KΩ	1	3937A-524	BT-2-82K	Video Amp. Screen
R41	6800Ω	1	3937A-35	BTS-6800	Peaking Coil Shunt
R42	47000Ω 5%	1	3937S-213	BTA-4700-5%	Video Amp. Plate
R43	820KΩ	1	3937A-60	BTA-820K	Voltage Divider
R44	3300Ω	1	3937A-31	BTS-3300	Isolation
R45	150KΩ	1	3937A-51	BTS-150K	Voltage Divider
R46	150KΩ	1	3937A-51	BTS-150K	DC Rest. Load
R47	100KΩ	1	3937A-49	BTS-100K	Picture Tube Grid
R48	47KΩ	1	3937A-45	BTS-47K	Voltage Divider
R49	1800Ω	1	3937A-28	BTS-1800	Voltage Divider
R50	33KΩ	2	3937A-219	BT-2-33K	Voltage Divider
R51	39KΩ	2	3937A-220	BT-2-39K	Voltage Divider
R52	4700Ω	1	3937A-121	BTA-4700	Brightness Control Shunt

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R53	12KΩ	2	3937A-214	BT-2-12K	Acc. Anode Load
R54	47KΩ	1	3937A-45		Sound IF Grid
R55	27KΩ	1	3947A-130		Sound IF Decoupling
R56	47KΩ	1	3937A-45	BTS-47K	Voltage Divider
R57	27KΩ	1	3937A-42	BTS-27K	De-emphasis
R58	18KΩ 5%	1	3937S-79	BTS-18K-5%	Ratio Det. Diode Load
R59	10 Meg. 20%	1	3937J-107	BTS-10 Meg.	AF Amp. Grid
R60	100KΩ	1	3937A-49	BTS-100K	AF Amp. Plate
R61	100KΩ 5%	1	3937S-87	BTS-100K-5%	Voltage Divider
R62	2.2 Meg. 5%	1	3937S-129	BTS-2.2 Meg. 5%	Output Grid
R63	390Ω	2	3937A-198	BW-2-390	Filter
R64	1 Meg. 20%	1	3937J-92	BTS-1 Meg.	Sync. Clipper Grid
R65	18KΩ	1	3937A-40	BTS-18K	Sync. Clipper Plate
R66	3.3 Meg. 20%	1	3937J-100	BTS-3.3 Meg.	Sync. Amp. Grid
R67	6800Ω	1	3937A-35	BTS-6800	Sync. Amp. Cathode
R68	22KΩ	1	3937A-41	BTS-22K	Integrator Network
R69	820KΩ	1	3937A-36	BTS-8200	Integrator Network
R70	8200Ω	1	3937A-36	BTS-8200	Integrator Network
R71	1.3 Meg.	1	3937J-63	BTS-1.3 Meg.	Vert. Osc. Grid
R72	10KΩ	1	3937A-54	BTS-10K	Vert. Osc. Transformer Shunt
R73	220KΩ	1	3937A-53	BTS-220K	Vert. Osc. Plate
R74	56KΩ	1	3937A-46	BTS-56K	Decoupling
R75	8200Ω	1	3937A-36	BTS-8200	Vert. Peaking
R76	2.2 Meg.	1	3937A-69	BTS-2.2 Meg.	Vert. Output Grid
R77	2700Ω	1	3947A-118	BTA-2700	Vert. Output Cathode-See Note 1
R78	4700Ω	1	3937A-121	BTA-4700	Vert. Output Decoupling-See Note 2
R79	8200KΩ	1	3937A-60	BTS-820K	Horiz. AFC Plate
R80	100KΩ	1	3937A-49	BTS-100K	Horiz. AFC Cathode-See Note 3
R81	150KΩ	1	3937A-51	BTS-150K	Horiz. AFC Cathode
R82	8200Ω	1	3937A-36	BTS-8200	Horiz. AFC Filter Network
R83	2.7 Meg.	1	3937A-71	BTS-2.7 Meg.	Voltage Divider
R84	68KΩ	1	3937A-47	BTS-68K	Voltage Divider
R85	100KΩ	1	3937A-137	BTA-100K	Voltage Divider
R86	100KΩ 5%	1	3937S-87	BTS-100K-5%	Horiz. Osc. Grid
R87	10KΩ	1	3937A-37	BTS-10K	Horiz. Osc. Transformer Shunt
R88	22KΩ	1	3937A-41	BTS-22K	Horiz. Osc. Transformer Shunt
R89	680Ω	1	3947A-135	BTA-68K	Horiz. Osc. Plate
R90	270KΩ	1	3937A-54	BTS-270K	Horiz. AFC Filter Network
R91	470Ω 20%	1	3937J-9		Parasitic Supp.
R92	1 Meg. 20%	1	3937J-92	BTS-1 Meg.	Horiz. Output Grid
R93	10Ω	1	3937A-1	BW-2-10	Horiz. Output Cathode
R94	22KΩ	2	3937A-217	BT-2-22K	Horiz. Output Screen
R95	22KΩ	2	3937A-217	BT-2-22K	Horiz. Output Screen
R96	560KΩ	1	3937A-58	BTS-560K	Feedback
R97	2200Ω	1	3937A-29	BTS-2200	Filter
R98A	400Ω	3	B-148030		Damper Filter-Wire Wound
B	3000Ω	1			Damper Filter-Wire Wound
R99	27Ω	1	3937A-6	BW-2-27	Filter Network
R100	18Ω	1	3937A-4	BW-2-18	Filter Network
R101	220Ω	2	3937A-193	BW-2-220	Focus Coil Shunt
R102	220Ω	2	3937A-193	BW-2-220	Focus Coil Shunt
R103	22Ω	1	3937A-93	BW-1-22	Bias Network
R104	220KΩ	1	3937A-141		HV Filter

Note 1. Some models use 1800Ω resistor in this application.
Note 2. Some models use 2700Ω resistor in this application.
Note 3. Some models use 150KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC	700VCT	5VAC	6.3VAC	C-148282			
	② 1.6A	.190ADC	③ 3A	② 3.7A				
				SEC. 4				
				6.3VAC				
				④ 5.7A				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	176Ω	720Ω	B-146842-1	A-8111	A-3000	TBO-1	Vert. Block Osc. Trans. Hor. Output Trans.
T3	23Ω	5.1Ω	AB-146161				
	Tap ② 70Ω	Tap ② 4.2Ω					
		SEC. 3 .90 CT					
		SEC. 5 0Ω					
T4	660Ω	20Ω	B-146989	A-8112 ③	A-3036 ③	TSO-5 ③	Vert. Output Trans.
T5A	14Ω		AB-146145	DY-7	MD-3		Hor. Deflection Coil
B	65Ω						Vert. Deflection Coil
T6	240Ω		AB-146758		MF-2		Focus Coil

③ Drill one new mounting hole.

CROSLEY MODEL 10-419MU

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CROSLEY	STANCOR	MERIT	CHICAGO	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
T7	5400Ω	4.5Ω	360Ω	.6Ω	B-142890	A-3849	A-3019	RO-9 ③	③ Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	CROSLEY PART No.	JENSEN PART No.	QUAM PART No.	
SP1	52Ω	4.5Ω	AD-148127		52E52S	
	CONE DIA.	V. C. DIA.				
SP2	5"	9/16"				

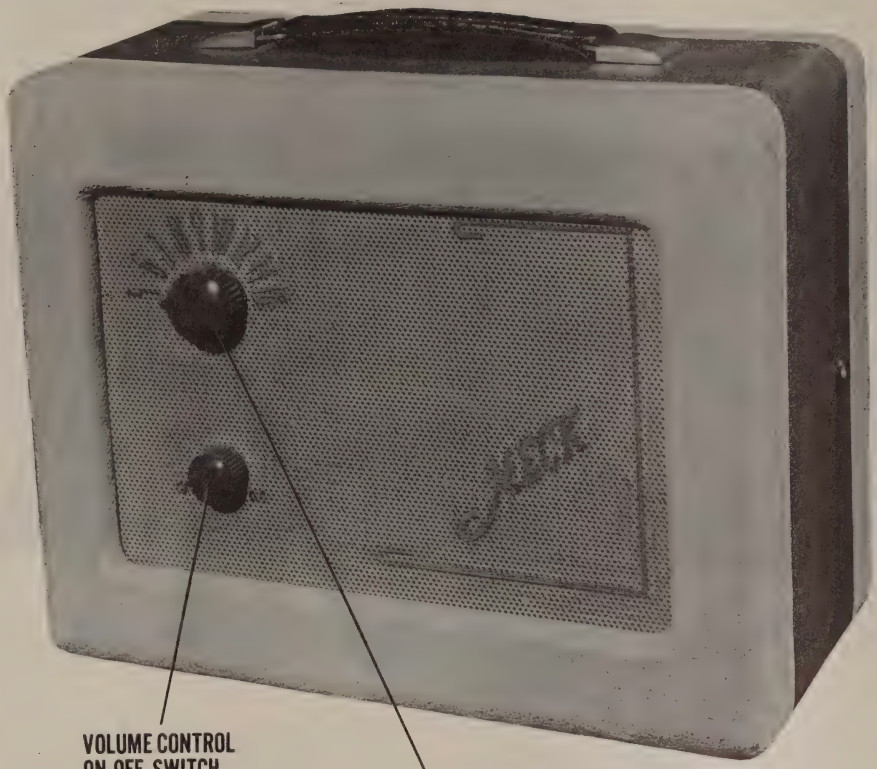
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	CROSLEY PART No.	MEISSNER PART No.	
L1	Ant. Shunt	0Ω		AW-146735		
L2	Fil. Choke	0Ω		AW-146858		
L3	RF End Inductor	0Ω		AW-146985		
L4	RF Coil	0Ω		D-146656		Part of L7, L12
L5	RF Coupling	0Ω		AW-146988		
L6	Mixer Grid End Inductor	0Ω		AW-146987		
L7	Mixer Grid	0Ω		D-146656		Part of L4, L12
L8	RF Choke	.2Ω		AW-146735		
L9	RF Choke	.2Ω		AW-147015		
L10	Osc. Shunt	0Ω		AW-146753		
L11	Osc. End Inductor	0Ω		AW-146986		
L12	Osc. Coil	0Ω		D-146656		Part of L4, L7
L13	1st Video IF Coupling	1.3Ω		AW-146755		
L14	1st Video IF	.5Ω		AW-146763		Green dot
L15	2nd Video IF	.5Ω		AW-146582		Yellow dot
L16	3rd Video IF	.5Ω		AW-146583		
L17	Fil. Choke	0Ω		AW-146855		
L18	RF Choke	5Ω		AW-146570		White dot
L19	4th Video IF	.5Ω		AW-146582		Yellow dot
L20	RF Choke	5Ω		AW-146570		White dot
L21	5th Video IF	.4Ω		AW-147022		
L22	Peaking	20Ω		AW-146889		
L23	Peaking	11Ω		AW-147993		Wound on 3.9KΩ resistor
L24	Peaking	11Ω		AW-147043		Wound on 22KΩ resistor
L25	Peaking	20Ω		AW-146889		
L26	RF Choke	4.8Ω		AW-146570		White dot
L27	Sound IF	2.5Ω	2.5Ω	AC-146782		
L28	Ratio Det. Trans.	4.5Ω	.2Ω	C-146874		
L29	Horiz. Osc. Trans.	140Ω	40Ω	AC-146698		
L30	Horiz. Size	.8Ω		AW-148197		

MISCELLANEOUS

ITEM No.	PART NAME	CROSLEY PART No.	NOTES
M1	RF Tuner	AW-148164	Complete
M2	Fuse	W-144898-1	.2Amp. - 250Volt
M3	Ion Trap	B-146480	
	Trimmer	B-132386-16	Horiz. Drive 10-160MMF } 2 section
	Trimmer		Horiz. Range 30-240MMF }
	Antenna Assembly	AC-148285	
	Antenna Terminal Board	AW-148124	
	Safety Glass	R-147999	
	Cabinet	R-148101	
	Dial	C-148169	Tuning
	Dial	C-148481	Volume
	Knob	AW-147889	Tuning
	Knob	AW-147888	Volume
	Knob	AW-147887	Off-On-Contrast

MECK MODEL EV-760
(BATTERY-LINE OPERATED)



MECK MODEL EV-760
(BATTERY-LINE OPERATED)

TRADE NAME	Meck, Model EV-760
MANUFACTURER	Meck Industries, Plymouth, Indiana
TYPE SET	Three Power Operated Portable Superheterodyne Receiver
TUBES (FOUR)	Types 1R5 Converter, 1L4 IF Amp., 1U5 DET-AVC-AF, 3S4 Power Output
POWER SUPPLY	110-120 Volts AC-DC or 6 Volts "A" Supply and 67.5 Volts "B" Supply
RATING	.16 Amp. at 117 Volts AC or 40MA at 5 Volts DC and 12.5MA at 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to stator or rear section of tuning gang. Low side to B-.	455KC (400 ~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1720KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	Tune for max. output.	"	A6	"

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

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PARTS LIST AND DESCRIPTIONS

MECK
MODEL EV-760

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amp.	1L4	1L4	6AR	
V3	DET.-AVC-AF	1U5	1U5	6BW	
V4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	CL-10010	PRSA150/50-50		EDL5515		TVA-2453	Filter-Blue
B	50	150							Filter-Red
C2	100	50	CL-10009	PRS50/100		BRH501		TVA-1310	Fil. Bypass
C3	.01	600	CP-12103	P688-01	D6-103	PTE6S1	811-01	TM-11	Decoupling
C4	.02	200	CP-12203	P488-02	DF-203	PTE4S2		TM-12-2	AVC Filter
C5	250	500	CM-15251	1468-00025	D6-251	5W5T25	GP2K-250	1FM-325	Diode RF Filter
C6	.0018	1500		P688-002	D6-102	PTE6D2	GP2M-002	TM-22	Audio Coupling
C7	.01	600	CP-12103	P688-01	D6-103	PTE6S1	811-01	TM-11	AF Amp. Screen Byp.
C8	.005	200	CP-12502	P688-005	D6-502	PTE6D5	811-005	TM-25	Audio Coupling
C9	.0025	1400	CP-14302	P688-0022	D6-252	PTE6D3	GP2M-0025	TM-23	Output Plate Byp.
C10	.1	400	CP-14104	P488-1	DF-104	PTE4P1		72P52	Line Isolation
C11	.05	400	CP-14503	P488-05	DF-503	PTE4S5		TM-15-4	Line Filter

CONTROLS

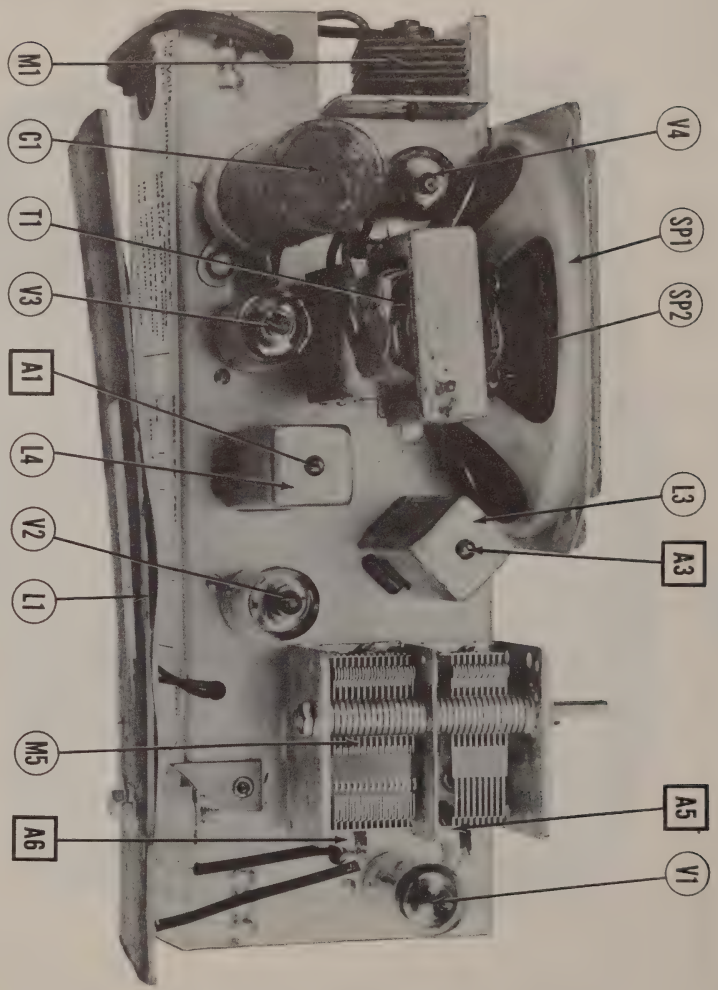
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	VC-31105-B	Q13-137	G-63-Z	B-70-S	Volume control
B	Switch		Not Req.	76-2	SWB-2	Not Req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	IDENTIFICATION CODES
R2	100KΩ	½	RC-31003	BTS-100K	Osc. Grid
R3	2.2 Meg.	½	RC-32204	BTS-2.2 Meg.	IF Grid
R4	5000Ω	½	RC-35001	BTS-4700	Screen Dropping
R5	2.2 Meg.	½	RC-32204	BTS-2.2 Meg.	AVC Network
R6	10 Meg.	½	RC-31005	BTS-10 Meg.	AF Grid
R7	3.3 Meg.	½	RC-33304	BTS-3.3 Meg.	AF Screen
R8	1 Meg.	½	RC-31004	BTS-1 Meg.	AF Plate
R9	2.2 Meg.	½	RC-32204	BTS-2.2 Meg.	Output Grid
R10	820Ω	½	RC-38200	BTS-820	Filament String
R11	1500Ω	½	RC-31501	BTS-1500	Filament String
R12 A	1100Ω	10	RX-10008	ABA-2500 *	Filament Dropping-Wire Wound
B	1350Ω				Filter-Wire Wound
R13	22Ω	½	RC-30220		Surge Limiter

* Set slider at 1100Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MECK	STANCOR	MERIT	CHICAGO	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
T1	6.5KΩ	3.2Ω	375Ω	.5Ω	TO-10012	A-3878 #	A-2931 #	RO-13 #	# Bend mounting tabs down and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MECK	JENSEN	QUAM	
	FIELD	V. C. IMP.	PART No.	PART No.	PART No.	
SP1	PM	3.2Ω	SR-10000	ST-113 † MOD. P4-X	4A07 †	† Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	3 7/8"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MECK PART No.	MEISSNER PART No.	
L1	Loop Ant.	3Ω		AL-10024		
L2	Osc. Coil	.8Ω	5Ω	TRC-10015A	14-1060	
L3	Input IF	30Ω	22Ω	TS-10040	16-6668	
L4	Output IF	30Ω	22Ω	TS-10040	16-6669	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	MECK PART No.	SYLVANIA PART No.		
M1	.060A		NB-5		

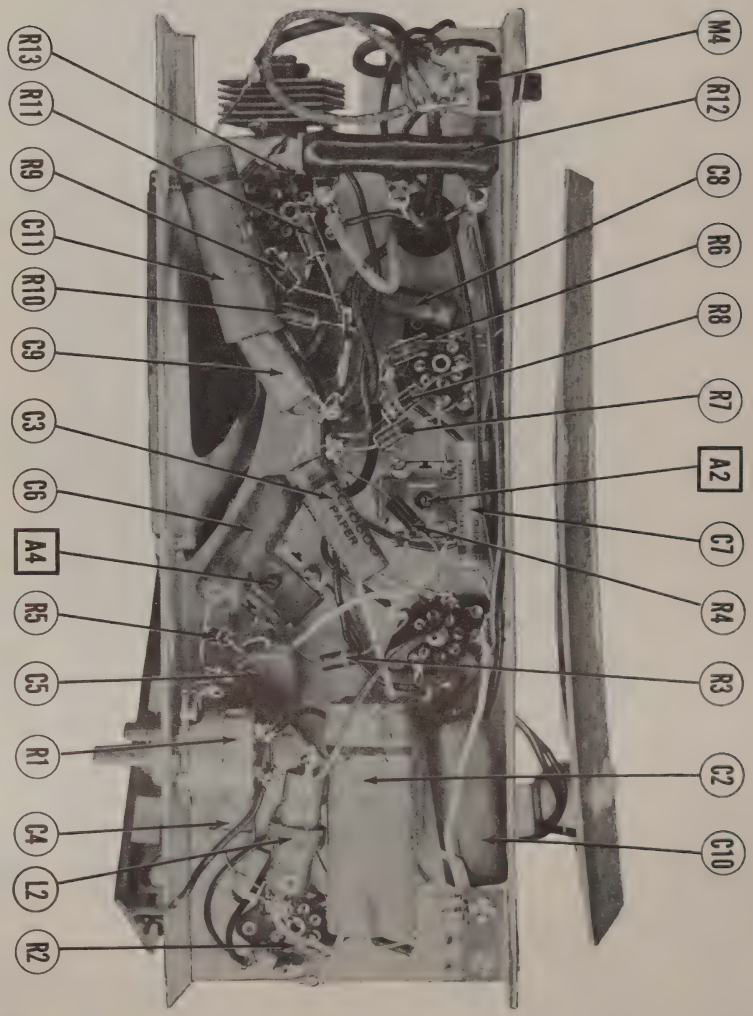
BATTERIES

ITEM No.	VOLTAGE	MECK PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	6V "A"	76Z1514	950			2R			4 Used in series
M3	67.5A "B"	76Z1523		467			XX45		

MISCELLANEOUS

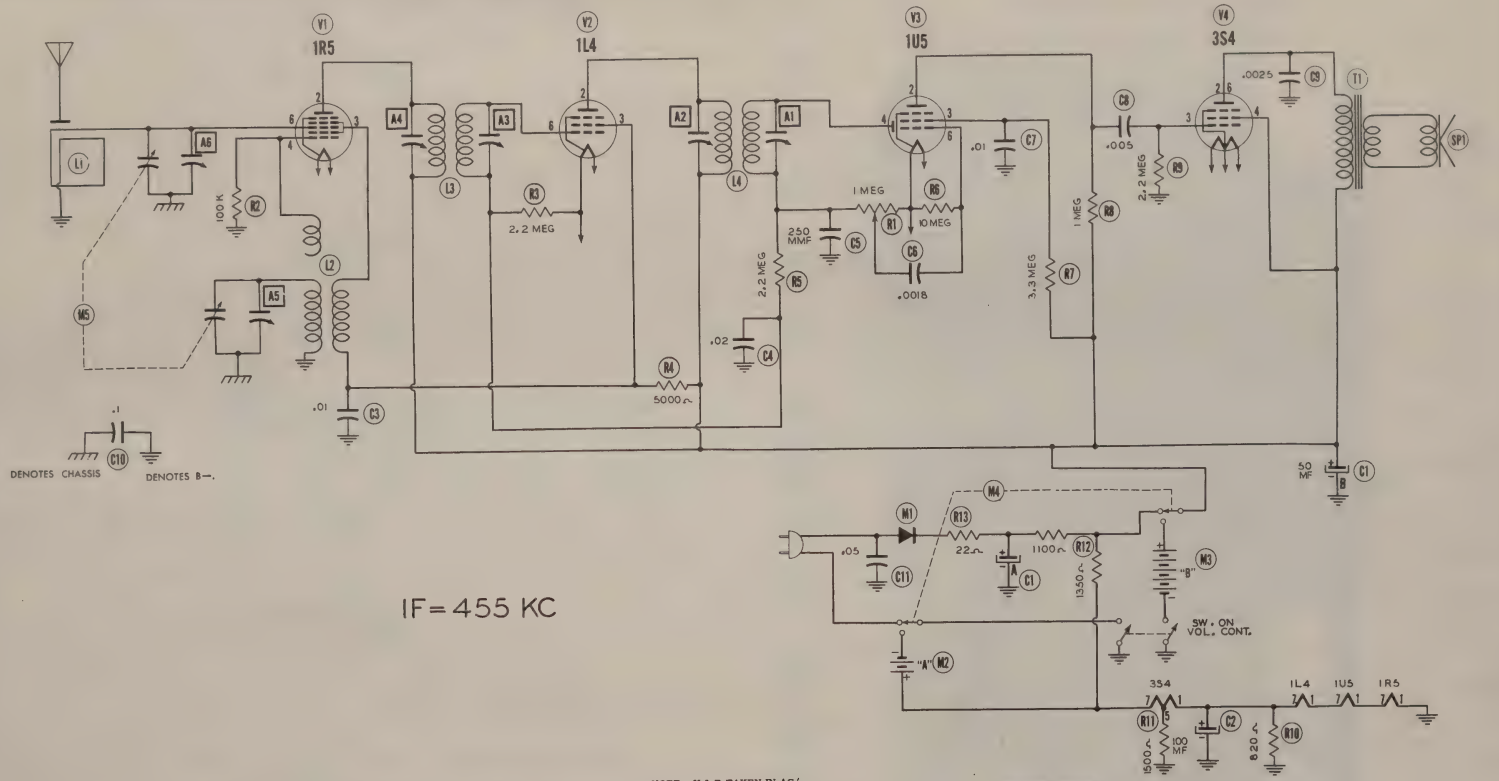
ITEM No.	PART NAME	MECK PART No.	NOTES
M4	Switch	VS-10003	AC/DC-Battery
M5	2 Gang Var. Cap.	CV-10008D	(33-467MMF, 28-205MMF)

CHASSIS—BOTTOM VIEW



SET 104

FOLDER 7



IF = 455 KC

NOTE: V & R TAKEN IN AC/

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	0V.	57VDC	47VDC	§-4.2VDC	0V.	0V.	1.2VDC
V 2	1L4	2.5VDC	57VDC	47VDC	0V.	2.5VDC	.2VDC	3.7VDC
V 3	1U5	1.2VDC	20VDC	10VDC	.3VDC	0V.	0V.	2.5VDC
V 4	3S4	3.7VDC	55VDC	0V.	57VDC	5VDC	55VDC	6.3VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†1.4KΩ	†6.4KΩ	100KΩ	*	3Ω	*
V 2	1L4	*	†1.4KΩ	†6.4KΩ	0Ω	*	1.6 Meg.	*
V 3	1U5	*	†1 Meg.	†3.3 Meg.	750KΩ	Inf.	10 Meg.	*
V 4	3S4	*	†1.6KΩ	2.2Meg.	†1.4KΩ	*	†1.6KΩ	*

† MEASURED FROM OUTPUT OF M1.

* DO NOT USE OHMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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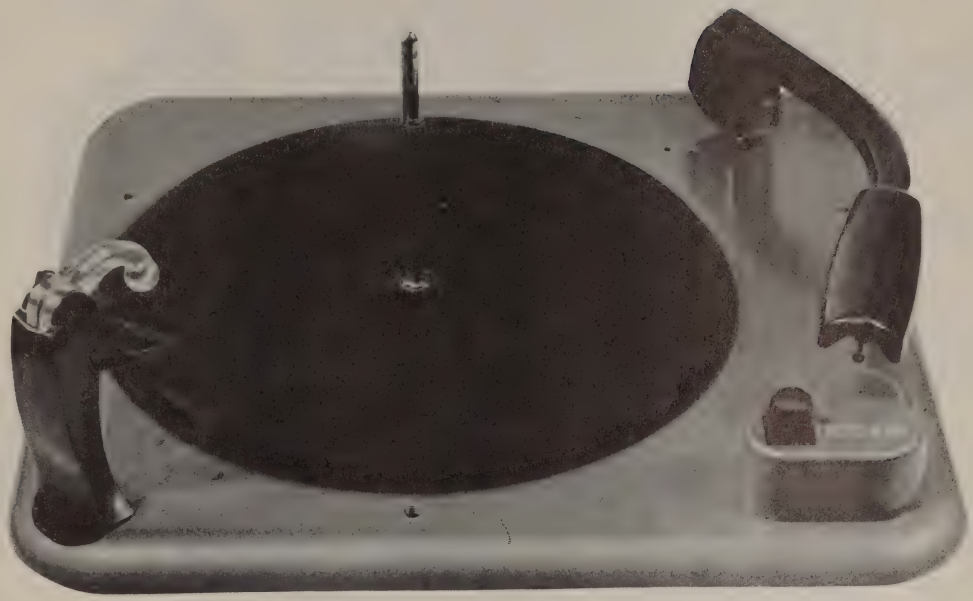
104-7

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TOP VIEW

SERIES 700-FS
CHANGER

SERIES 700-FS
CHANGER

GENERAL INFORMATION

The Series 700-FS is an automatic cam-type changer, featuring single-button control, automatic shutoff, and eccentric spindle record selection. It will play and automatically change twelve 10-inch or ten 12-inch records (not intermixed) at a single loading.

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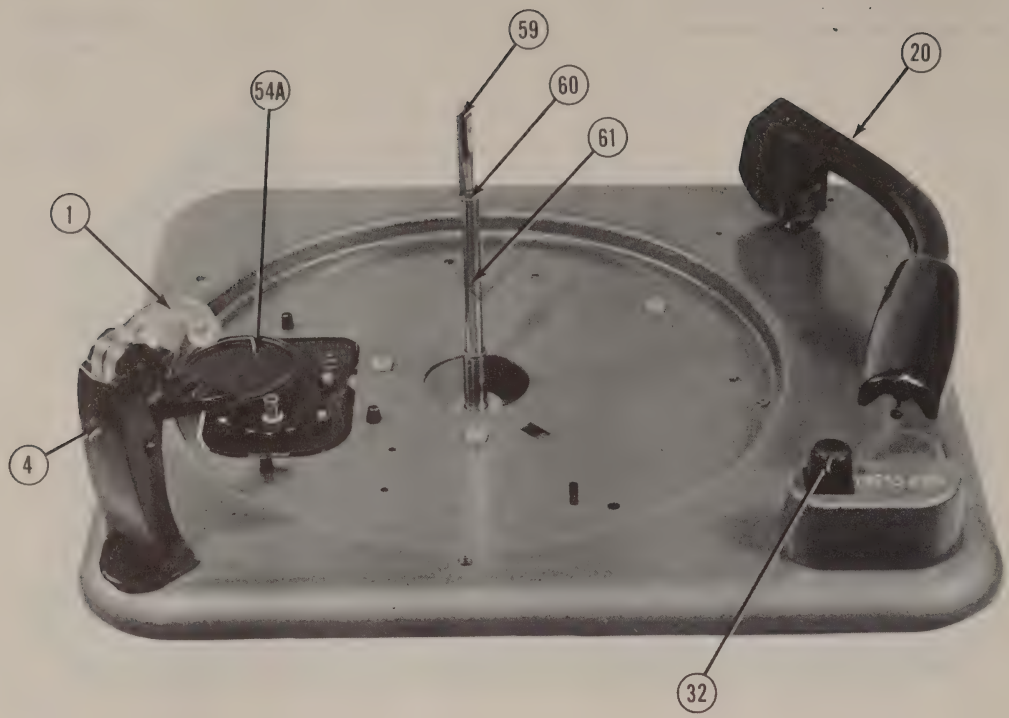


TOP VIEW—LESS TURNTABLE

AUTOMATIC OPERATION

1. Raise the record stabilizer (1) to a vertical position.
2. For 10-inch records, push the record support (4) to its forward position. For 12-inch records, push the record support away from the spindle.
3. Place the records to be played on the spindle so they will rest on the record support (4) and the eccentric (60) or step of the spindle.
4. Lower the record stabilizer to the record.
5. Press on the "Start-Reject" button (32). This starts the motor and the automatic operation of the changer.
6. Upon completion of the last record, the pickup arm will return to a rest position and the changer will shut off automatically.
7. To reject a record while playing, press the control button (32).

MANUAL OPERATION

Odd-size, warped, and home recordings should be played manually:

1. Push the record support (4) to the 12-inch position.
2. Place a record on the turntable.
3. Raise the pickup arm from its rest position. This starts the motor and the turntable rotating.
4. Place the pickup arm on the record.
5. If at the end of the record there is an eccentric groove, the pickup arm will return to its rest position and the changer will shut off automatically. If the record does not have an eccentric groove, press the "Start-Reject" button (32). The arm will now return to its rest position and the changer will shut off automatically.

CHANGE CYCLE

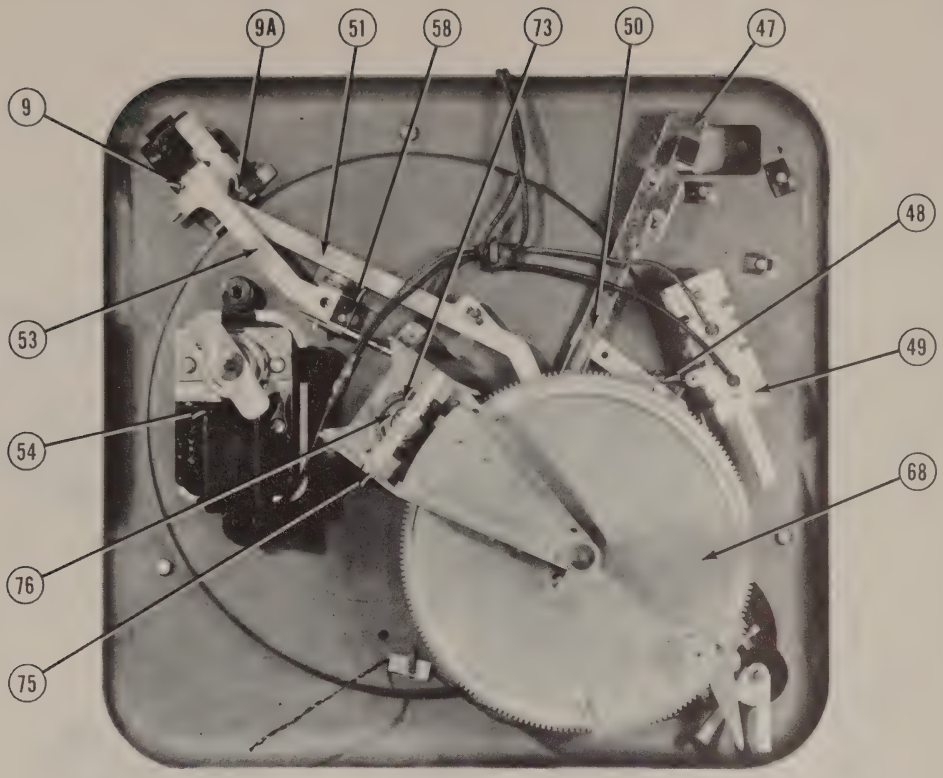
As the pickup arm moves toward the center of the record, the sickle-shaped portion of the lift and sweep lever (44) comes into contact with one leg of the "V" lever (marked "A" of the velocity trip assembly (45)), causing the trip lever (45) to move toward the spindle. This inward movement of the trip assembly continues until the tip of the trip lever (45) comes in range of the finger on the adjustable collar (13). Once this position is attained, and as long as the movement of the needle toward the spindle is less than ⅛ inch per revolution, the tip of the trip lever will be pushed away from the spindle. This means that the friction clutch (friction between the "V" lever "A" and the trip lever "B" of velocity trip assembly (45)) slips a corresponding amount; however, when the needle moves into the fast lead-in groove, the trip lever moves in rapidly allowing the Crescent lever "C" of lever (45) to slide off the face of the cam trip actuator (67). As a result, the next revolution of the collar (13) will force the trip lever outward causing the crescent lever "C" to pull against the cam trip actuator (67) enough to unlatch the spring-loaded actuating lever (66). This allows the lever (66) to raise the brass pinion (18). The finger of the adjustable driving collar (13) now engages a projection on the brass pinion, setting the pinion (18) and the cam (68) in rotation. A single revolution of the main cam performs all of the required change cycle functions.

As the main cam rotates, the pin of the sweep lever (44) rides up the incline and into the cam track. This action raises the pickup arm and swings it out to clear the record.

The actuating lever (66), which actuates the floating pinion (18), is reset automatically with the cam trip actuator (67) by the cam (69A) on the positioning bracket (69).

The extended section of teeth of the main cam engages and rotates the pinion (73), which, in turn, rotates the eccentric (60). This selects and drops a record to the turntable. As the record drops to the turntable, the wide section of teeth of the cam moves away from the pinion. The eccentric is now aligned with the lower part of the spindle and is held in this position by a leaf spring (70), which detents into a slot in the underside of the spindle cam pinion (73).

The pin of the sweep lever (44) now rides into the indexing track of the cam. This swings the pickup arm in and positions it for set down. The sweep lever pin now rides down the incline on the cam, lowering the pickup arm to the record. The washer, mounted on the floating brass pinion (18), drops into a depression on the top edge of the cam rim, thus disengaging the pinion (18) and the adjustable collar (13). The main cam is



BOTTOM VIEW

held in this position (called "home" position) by the leaf spring (42) detented in the cam hub. This completes the change cycle.

Determination of the 10-Inch and 12-Inch Set Down

The 10-inch and 12-inch indexing is determined by the main cam (68) by allowing the sweep lever pin to enter the 10-inch or 12-inch indexing track. This switching is controlled by means of the frog (68A), which is moved from one side to the other by the 10-inch frog actuator assembly (51) and by the sweep lever pin (44).

When the record support (4) is in the 10-inch position, the end of the 10-inch actuator lever (51) is lowered, thereby pushing the frog away from the center of the cam as it comes in contact with actuator lever (51). This allows the sweep lever pin to enter the inner track, which positions the pickup arm for 10-inch set down. The frog is so constructed that as the sweep lever pin goes past it, it will pivot it inward automatically, setting it for 12-inch position. This operation is repeated in each change cycle; i.e., when the record support is in the 10-inch position. However, when the record support is in the 12-inch position, the actuating lever (51) is raised above the frog. This allows the frog to stay in the inward position at all times.

Automatic Shut Off

The function of the automatic shut off takes place during the change cycle after completing the last record, or if the changer is manually rejected while playing the last record. The shut off is determined by the shut-off actuator lever (53). When there are records resting on the record support, the actuator (7) is depressed by their weight resting on the finger (7A) of the actuator, which, in turn, pivots the shut-off actuator lever clear of the path of the shut-off frog (located at the outer edge of the main cam). However, when no record is resting on the record support, the finger (7A) and actuator (7) move up due to the thrust imparted to it by the shut-off actuator (53). Consequently, the end of the actuator lever is moved into the path of the pin protruding from the shut-off frog. When the cam rotates during the automatic cycle, the engagement of the shut-off lever (53) with the shut-off frog pin moves the frog inward. This allows the pin of the sweep lever (44) to follow the outer track (or rest track) of the cam. This causes the extension of the sweep lever to lower on the switch actuator (49), which, as a result, trips the switch and stops the motor.

By depressing the "Start-Reject" button (32), with no records on the record support, the changer will go through an automatic cycle and shut off.

ADJUSTMENTS

Pickup Arm Set-Down Point

In early production, the set-down point was adjusted by means of two adjusting screws in the bottom cam (31), as shown in the photographs. These screws contact a flat on the pickup arm support rod (30) in such a manner as to cause the bottom cam to turn when the set screws are turned in and out. To move the set-down position, loosen one screw and tighten the other until the correct position is obtained. Make certain that both screws are tightened after the adjustment has been completed.

In late production, the changer has an eccentric pin (21) in the pickup arm, and the bottom cam (31) is press-fitted to the support rod (30). To check the adjustment, place a 10-inch record on the turntable with the record support in the 10-inch position. By turning this eccentric pin (21), it gives the pickup arm a small horizontal movement; however, if a large adjustment is necessary, due to the looseness of the set screw in the sweep lever (44), the following adjustment is necessary: Remove the power plug and trip the changer by pushing down on the "Start-Reject" button (32). Rotate the turntable in a clockwise direction until the pickup arm starts to drop to the record. At this point, the sweep lever (44) is securely held by the 10-inch index groove in the main cam. Loosen the set screw in the sweep lever (44) so the support rod (30) is free to turn. Move the pickup arm over the starting groove of the record and hold it in this position while tightening the set screw. A minor adjustment may now be made by the eccentric pin (21).

A PHOTOFACT "EXPLODED" VIEW

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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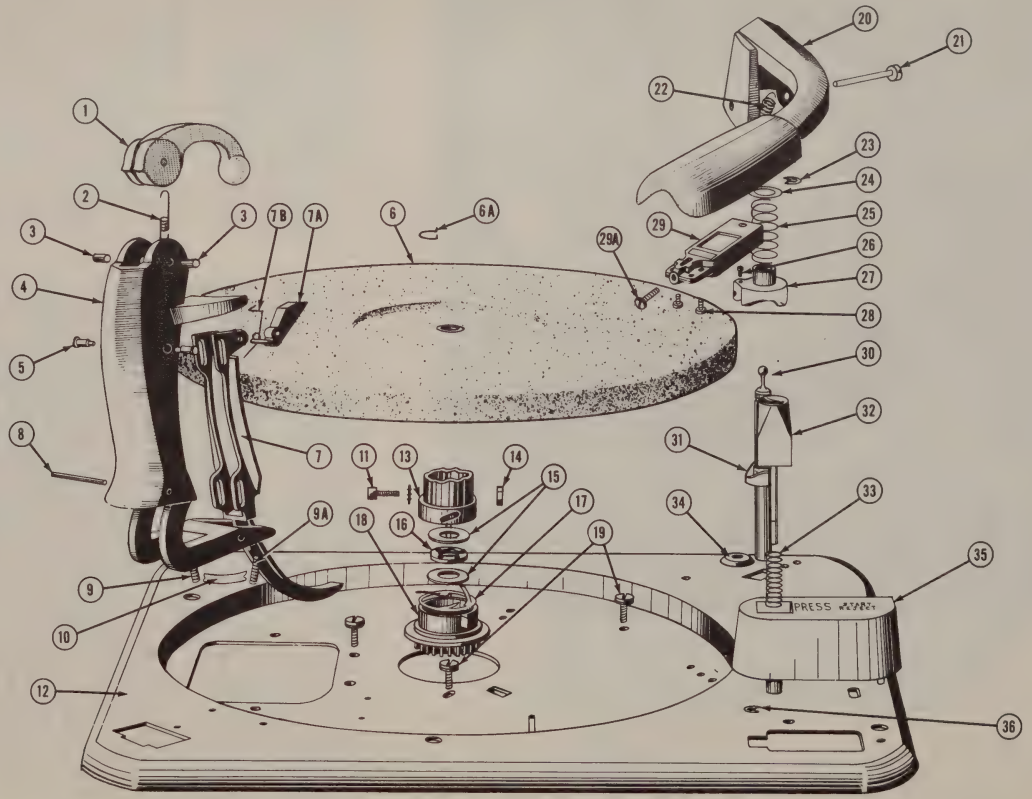

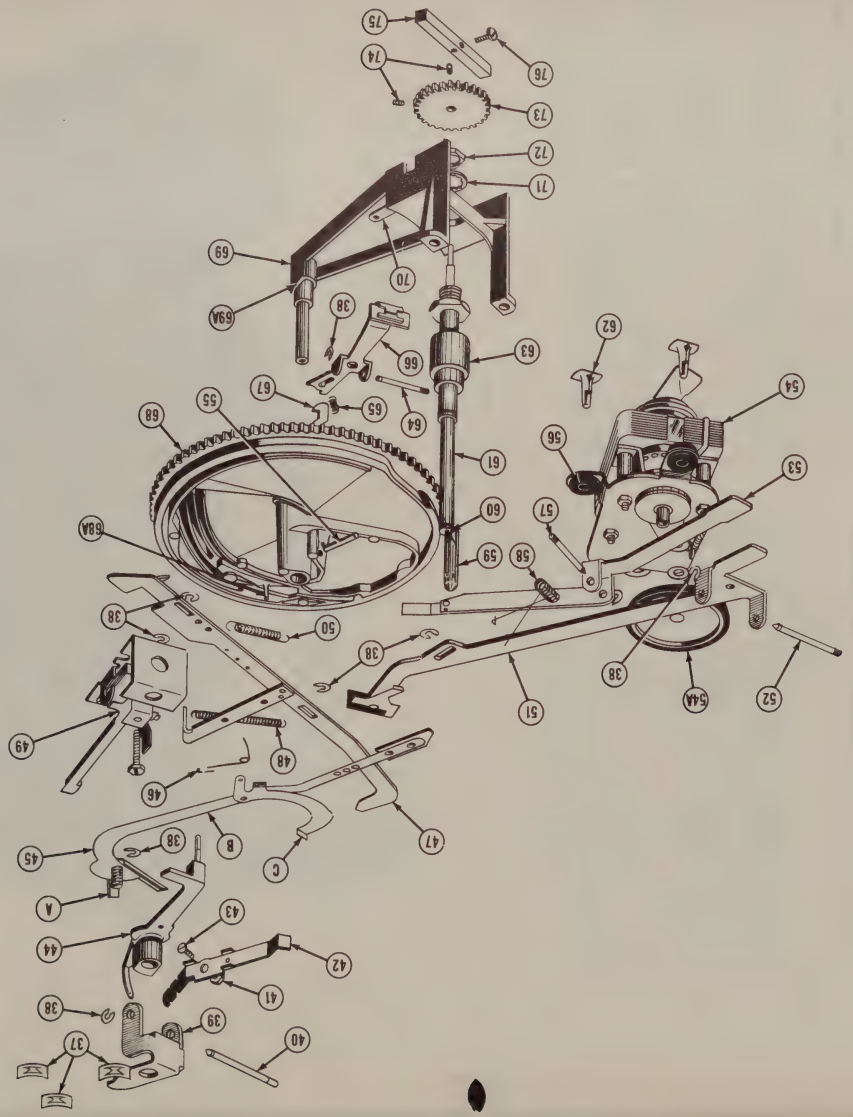
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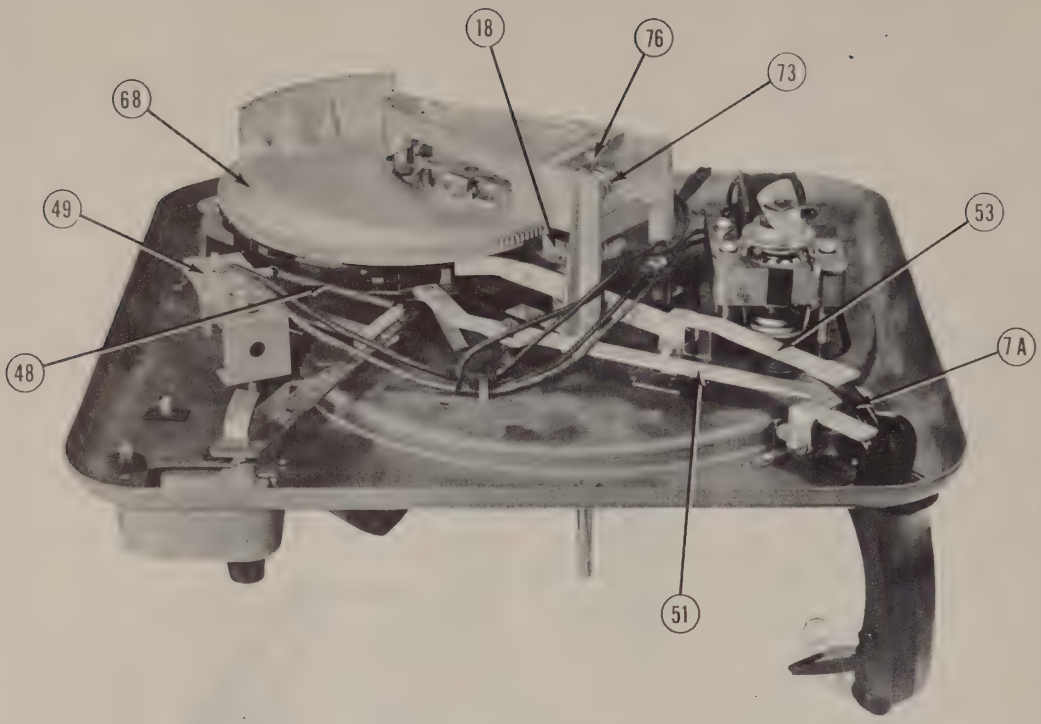


FRONT VIEW—BOTTOM

Pickup Arm Height

When the pickup arm is in proper adjustment, the needle should clear a stack of twelve 10-inch records. To vary the height of the pickup arm on units of early production, loosen the set screw (located in the sweep lever (44)), and raise the pickup arm shaft (30). If a large adjustment is necessary, it will probably be found that the lift and sweep lever assembly (44) is bent out of shape.

In later models, the pickup arm support has been modified to permit bending of the ball tip for adjustment of pickup arm height.

If the pickup arm is set too high to play the first record, turn the set screw, located directly behind the pickup arm in the base plate, in a counterclockwise direction to lower the arm.

Record Support Adjustment

The record support platform (4), in both 10-inch and 12-inch positions, should clear the edge of the record by approximately .015 (1/64"); i.e., when the record is centralized with the lower part of the spindle (61). To adjust the record platform for 12-inch setting, adjust the set screw (9A). For 10-inch adjustment, turn set screw (9) for proper adjustment.

Spindle Alignment

If the eccentric cam (60) is out of alignment with the lower part of the spindle (61), it may be aligned as follows: Be sure the leaf spring (70) is in the detent of the pinion (73); then loosen the set screws (74). Align the eccentric (60) with the lower part of the spindle and tighten the set screw. The eccentric must be aligned with the spindle to assure proper dropping of records. The spindle cap (59) should be in a position so that slide is facing the center of the record support (4). To align the spindle cap, loosen the set screw (76), turn the cap to its correct position, and tighten the set screw. There should be approximately .005" total vertical play in the spindle assembly after both adjustments to prevent binding.

10-Inch and 12-Inch Indexing Adjustment

When the record support (4) is in the 12-inch position, the phosphor-bronze spring on the end of the 10-inch actuator (51) should be raised high enough to clear the pin of the indexing frog (68A) when the main cam rotates. However, when the record support (4) is in the 10-inch position, the spring is lowered and should contact the frog pin as the cam rotates. The frog pin passes behind the bronze spring and is moved away from the center of the cam. The bronze spring is split for the purpose of easy adjustment. If this spring does not move the frog far enough, it should be bent to do so. It should be remembered that the frog is so constructed that as the sweep lever pin goes past it, it will reset the frog in the 12-inch position automatically; and to play a 10-inch record, this pin must be reset by the spring every time.

Removing the Turntable

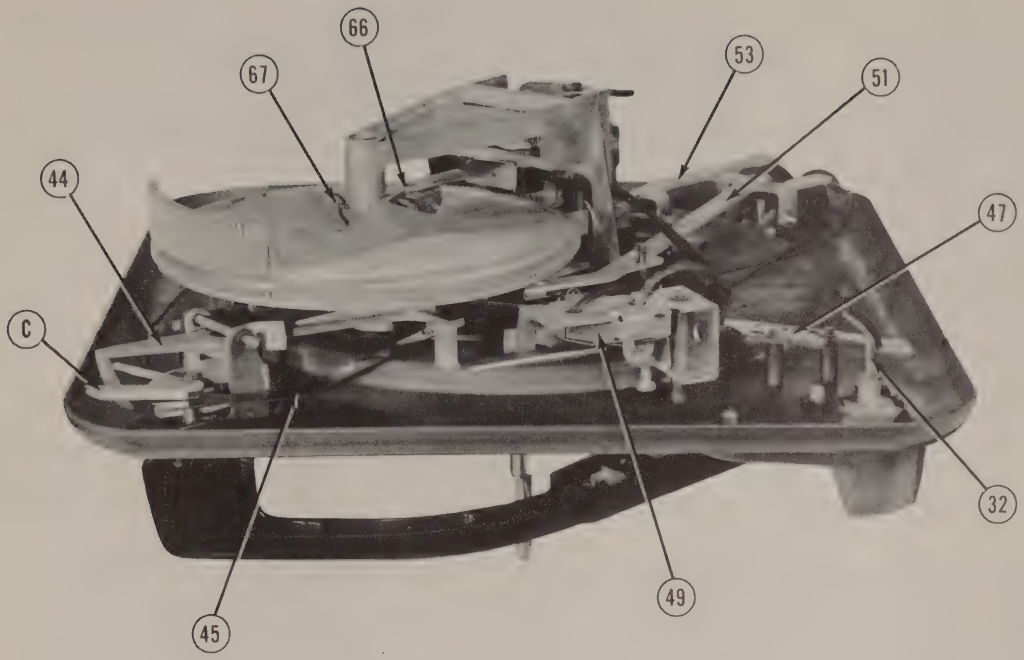
To remove the turntable (6), first remove the retaining ring (6A) near the top of the turntable. Be sure the trip lever (45) is clear of the bakelite washer of the pinion (18). The turntable may be removed, then, by lifting straight up.

In replacing the turntable, be sure the trip lever is clear of the pinion (this is to prevent bending of the trip lever 45). The idler wheel (54A) must be pushed back out of the way so the turntable will be fully seated and to allow the idler wheel to contact the I.D. of the turntable. Replace the retaining ring.

TROUBLES

Records Do Not Drop to Turntable When Changer Cycles

1. Check the thickness of the record. If a record is too thick, it will not drop down far enough to clear the spindle guide.
2. Spindle out of alignment. See "Spindle Alignment" under "ADJUSTMENTS."



RIGHT SIDE VIEW—BOTTOM

3. Check the record support for proper adjustment. See "Record Support Adjustment."

4. Pinion (73) may be loose on the eccentric shaft (60).

Two Records Drop at a Time

1. Check the thickness of the records. They should not be less than .070" at the center hole.

2. Check the slide in the spindle cap (59) for binding in raised position.

3. Check the record support. It may be out of adjustment. See "Record Support Adjustment."

Failure to Trip

1. Spring (46) on trip assembly loose.

2. Crescent lever (C) of the trip assembly (45) binding in an outward position.

By moving the "V" lever (A), the trip assembly (45) may be checked to insure that it rotates freely and does not bind on the reject trip lever (47) or base plate assembly (12). The friction clutch should not slip when the trip lever moves over its free path.

3. Spring (65) of lever (66) broken.

4. If the changer won't trip manually, check the reject trip lever (47) to make sure it moves the cam trip actuator (67) enough to unlatch the actuating lever (66). This action should occur before the switch plate reaches its maximum allowable rotation.

Continuous Tripping

1. Reject trip lever (47) binding in the reject position.

2. Check the leg on the adjustable collar (13). It should clear the drive pinion (18) by approximately 1/32"; i.e., when the fiber disc on the drive pinion is resting in the cutout in the main cam.

3. Check the changer to see if it is level. A tilted changer may cause it to trip continuously.

Scraping Noise During the Change Cycle

1. Plastic tip on the follower pin on the sweep lever (44) missing.

No Automatic Shut Off

1. Spring (48) loose, allowing the switch assembly to stay in an outward position.

2. Plastic tip on sweep lever pin (44) missing, which, as a result, does not raise the sweep lever high enough to engage the switch actuator.

3. Defective switch.

4. Spring (58) is broken or too weak to actuate the shut-off lever (53); therefore, the lever is left in a raised position and, as a result, the shut-off frog remains in an outward position.

5. Actuator (7) binding.

LUBRICATION

Factory lubrication should be sufficient for a long period of service; however, if it becomes necessary to lubricate, do so as follows:

Use light machine oil in all moving parts (where necessary), except the main cam (68) and the eccentric pinion (73).

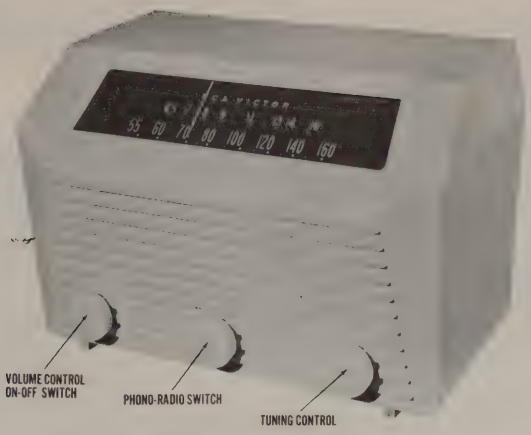
Use a good light grease on the cam tracks, the indexing frog and the shut-off frog, teeth of the main cam, and the detent of the pinion (73).

CAUTION: Do not over lubricate. This may cause sticking of parts. Do not allow grease or oil to come in contact with the idler wheel (54A) and the turntable rim.

PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	55-73613	Record stabilizer
2	33-73349	Stabilizer spring
3	12-74596	Record stabilizer pin
4	62-74534	Record support
5	12-74343	Record support actuator stud
6	66A75025	Turntable assembly
6A	33-73610	Retaining ring
7	55-74853	Actuator
7A	55-74865	Finger
	12-74849	Pivot pin for finger
7B	33-75458	Spring
8	12-74846	Record support actuator pin
9	2087-S	Set screw (10-inch record support adjusting screw)
9A	2087-S	Set screw (12-inch record support adjusting screw)
10	33-74543	Lock spring
11	9214	Cap screw
12	57A74558	Base plate assembly
13	65-73595	Driving collar
14	1022-A	Nut
15	32-72485	Washer
16	30A72491	Thrust bearing assembly
17	33-75452	Pinion spring
18	28A73704	Pinion assembly
19	1333-A	Positioning bracket mounting screws
20	69-73657	Pickup arm
21	12-75361	Eccentric pin
22	33-74053	Spring
23	32-13893	"C" washer
24	32-74055	Washer
25	33-73340	Spring
26	1417-A	Screw
27	43-73113	Pickup arm top cam
28	1338-A	Pickup mounting screw
29		Pickup cartridge "Astatic L70"
29A		Needle screw (part of item 29)
30	12-72975	Pickup arm support
31	43-73069	Pickup arm bottom cam
32	12A74494	Rod and button assembly
33	33-74509	Spring
34	37-73772	Grommet
35	21-74465	Button housing
36	32-16901	"C" washer
37	1200-A	Speed nut
38	32-16901	"C" washer
39	10-73132	Pickup arm hinge bracket
40	12-73007	Pickup arm hinge pin
41	1028-A	Nut
42	33-72963	Ground spring
43	1311-A	Screw
44	55A73045	Lift and sweep lever assembly
45	55A74635	Velocity trip assembly
46	37-75158	Crescent spring
47	55A74584	Reject trip lever assembly
48	33-71342	Spring
49	58A75392	Switch assembly
50	33-71342	Spring
51	55A74605	10-inch frog actuator assembly
52	12-73007	Hinge pin
53	55A74910	Shutoff actuator lever assembly
54	56-73555	Motor
55	12-75139	Cam trip actuator pin
56		Motor mounting grommet
57	12-74014	Hinge bracket pin
	16901	"C" washer
58	33-74898	Spring
59	21A73601	Spindle cap assembly
60	43A72960	Eccentric assembly
61	19A75358	Spindle assembly
62	37-73031	Snap fastener
63	65-75007	Liner—lower bearing sleeve
64	12-73568	Actuating lever pin
65	33-73577	Actuating lever spring
66	55A74813	Actuating lever assembly
67	55-75142	Cam trip actuator
	33-75136	Cam trip actuator spring
68	43A75398	Cam and frog assembly (including selector frog 55-73153 and shut-off frog 55-75045)
69	10A75238	Positioning bracket sub-assembly (including 70)
70	33-73135	Detent spring
71	1932-C	Lock washer
72	1042-A	Nut
73	28-73084	Eccentric pinion
74	2079-S	Set screws
75	32-73301	Spindle cap rod retainer
76	1344-A	Screw

RCA VICTOR
MODELS 9X651, 9X652 (Ch. RC-1085, A)



RCA VICTOR MODEL 9X652

TRADE NAME	RCA Victor, Models 9X651 (Ch. RC-1085), 9X652 (Ch. RC-1085A)
MANUFACTURER	RCA Victor Div. Radio Corp. of America, Camden, New Jersey
TYPE SET	AC-DC Operated 2 Band Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types 12BA6 RF Amp., 12BE6 Converter, 12BA6 IF Amp., 12SQ7 DET-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC-DC
RATING	.26 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC
SHORT WAVE	5.9-17.9MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set pointer 1 15/16" from left hand edge of dial backplate.

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and chassis.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 12BE6 (V2) Low side to chassis.	455KC (400 ∿ Mod.)	AM (2nd position CW)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	.1MFD	"	"	"	"	"	A5	Adjust for MINIMUM output.
3.		Loop	1630KC	"	"	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		Loop	1500KC	"	Tune for max. output	"	A7	Adjust for maximum output.
5.		Loop	600KC	"	600KC	"	A8	Rock tuning gang while adjusting A8 for maximum output. Repeat steps 3, 4 and 5 until no further improvement can be made.
6.	47MMF	High side to center terminal on antenna board. Low side to loop primary terminal (blue lead).	18.2MC	SW fully CW	Tuning gang fully open	"	A9	Adjust for maximum output.
7.	47MMF	"	15.2MC	"	Tune for max. output.	"	A10	"
8.	47MMF	"	6.1MC	"	6.1MC	"	A11, A12	Adjust for maximum output. Repeat steps 6, 7 and 8 until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS

RCA VICTOR MODEL 9X652

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	12BA6	12BA6	7BK	
V2	Converter	12BE6	12BE6	7CH	
V3	IF Amp.	12BA6	12BA6	7BK	
V4	DET.-AVC-AF	12SQ7	12SQ7	8Q	
V5	Power Output	35L6GT	35L6GT	7AC	
V6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	150	72312	PRSA150/80-40		EDL8415		TVA-2460	Filter-Red
B	30	150							Filter-Green
C2	.05	400	73553	P488-05		PTE4S5		TM-15	AVC Filter
C3	.05	400	73553	P488-05		PTE4S5		TM-15	Isolation
C4	.01	400	73561	P488-01	D6-103	PTE4S1	811-01	TM-11	RF Decoupling
C5	56		71924	CN56KN750	DN-56		N750K-56		Fixed Trimmer
C6	150		73501	GP150M	D6-151	5W5T15	GP2K-150	1FM-315	RF Coupling
C7	56		71924	CN56KN750	DN-56	5W5Q5	N750K-56	1FM-45	Osc. Grid Cap.
C8	3600	500	39665						Fixed Padder
C9	590	500	74929						Fixed Padder
C10	150		73501	GP150M	D6-151	5W5T15	GP2K-150	1FM-315	Diode RF Filter
C11	.02	400	71928	P488-022		PTE4S2		TM-12	Audio Coupling
C12	150		73501	GP150M	D6-151	5W5T15	GP2K-150	1FM-315	AF Amp. Plate Byp.
C13	.002	200	72315	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C14	.015	600	70572	P688-015		PTE6S15		MB-115	Output Plate
C15	.1	400	70617	P488-1		PTE4P1		72P52	Line Isolation
C16	.05	400	73553	P488-05		PTE4S5		TM-15	Line Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	38410	Q13-133	AG-60-Z	B-60-S	Volume control and switch
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SWB	Not Req.	Attach to R1A per instructions

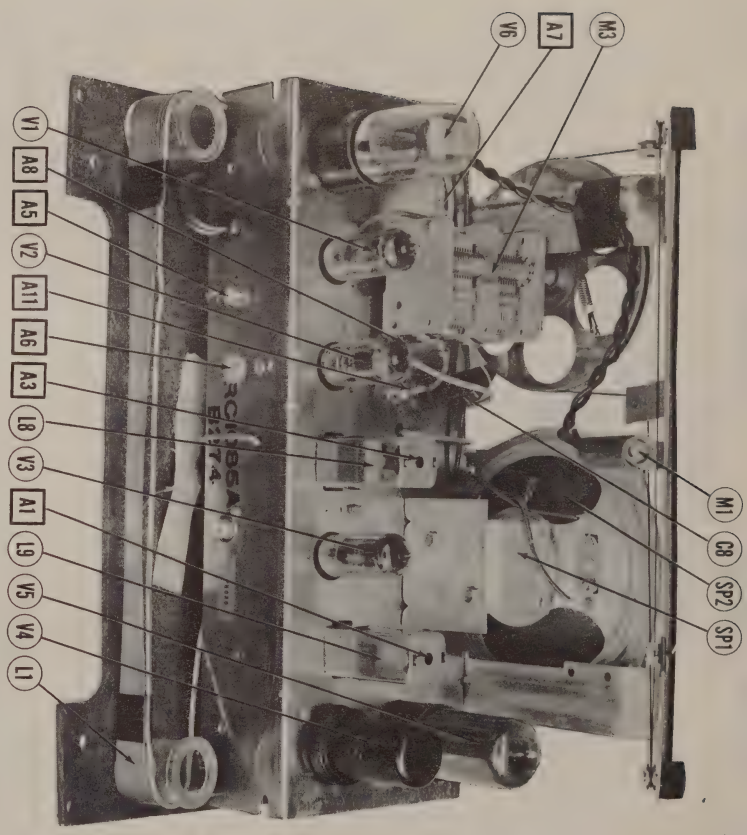
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	IDENTIFICATION CODES
R2	82Ω	½		BW-½-82	RF Amp. Cathode
R3	1000Ω	½		BTS-1000	RF Amp. Plate
R4	1000Ω	½		BTS-1000	RF Amp. Decoupling
R5	220KΩ	½		BTS-220K	Conv. Grid
R6	560Ω	½		BTS-560	Osc. Coil Shunt
R7	33KΩ	½		BTS-33K	Osc. Grid
R8	2.2 Meg.	½		BTS-2.2 Meg.	AVC Network
R9	180Ω	½		BW-½-180	IF Amp. Cathode
R10	56KΩ	½		BTS-56K	Diode Filter
R11	4.7 Meg.	½		BTS-4.7 Meg.	AF Amp. Grid
R12	220KΩ	½		BTS-220K	AF Amp. Plate
R13	470KΩ	½		BTS-470K	Output Grid
R14	120Ω	½		BW-½-120	Output Cathode
R15	1200Ω	1		BTA-1200	Filter
R16	15Ω	½		BW-½-15	Surge Limiter
R17	220KΩ	½		BTS-220K	Isolation

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	3100Ω	3.4Ω	260Ω Tap ⑧ 13.5Ω	.4Ω	73976	A-3330 ①	A-3031 ①	RO-3 ①	① Bend mounting tabs down and mount in old slots.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA RCA PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-105 ③		② Use universal mounting bracket provided.
SP1	PM	3.4Ω	73900	MOD. P5-X	5A07 ②	③ Fabricate new mounting bracket.
	CONE DIA.	V. C. DIA.				
SP2	4 3/8"	9/16"				

R F COILS

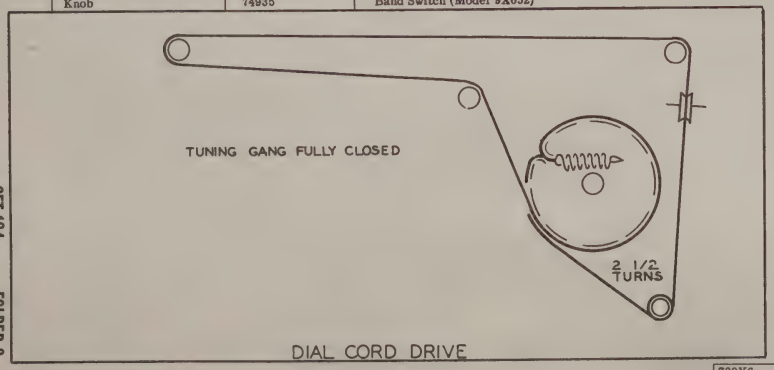
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	REPLACEMENT DATA MEISSNER PART No.	
L1A	Loop Ant.	1.8Ω		74920		Complete with cabinet back, Model 9X652
B	Loop Ant.			74919		Complete with cabinet back, Model 9X651
L2	SW Ant.	2.8Ω	.1Ω	74927		
L3	AM Osc.	.1Ω	4.8Ω	74925		
L4	SW Osc.	0Ω	.1Ω	74926		
L5	Peaking	2.2Ω		74930		Wound on 15KΩ resistor 12 microhenries
L6	Peaking	2.2Ω		72618		Wound on 1 Meg. resistor 20 microhenries
L7	Wave Trap	18Ω		74928		
L8	1st IF	14Ω	14Ω	74918		
L9	2nd IF	17.5Ω	17.5Ω	73037		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA RCA PART No.		NOTES
M1	Bayonet	7.5	.2	White	11765		Type #51

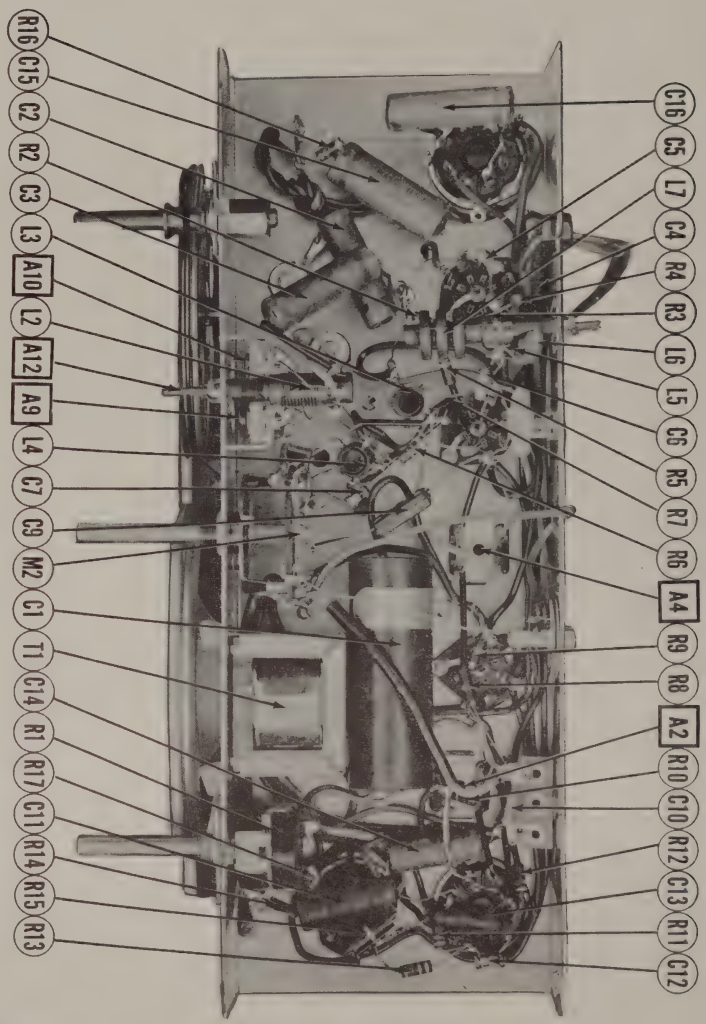
MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
M2	Switch	74921	Band-Phono
M3	2 Gang Var. Cap.	74917	(11-452MMF, 11-452MMF)
A6	Trimmer	74923	BC Osc. Adj.
A9, A10	Dual Trimmer	74924	SW Osc. Adj. / SW Ant. Adj.
	Dial Pointer	74696	
	Dial	74923	
	Cabinet	Y2174	Model 9X651
	Cabinet	Y2175	Model 9X652
	Knob	74931	Volume, Tuning (Model 9X651)
	Knob	72645	Volume, Tuning (Model 9X652)
	Knob	74934	Band Switch (Model 9X651)
	Knob	74935	Band Switch (Model 9X652)



DIAL CORD DRIVE

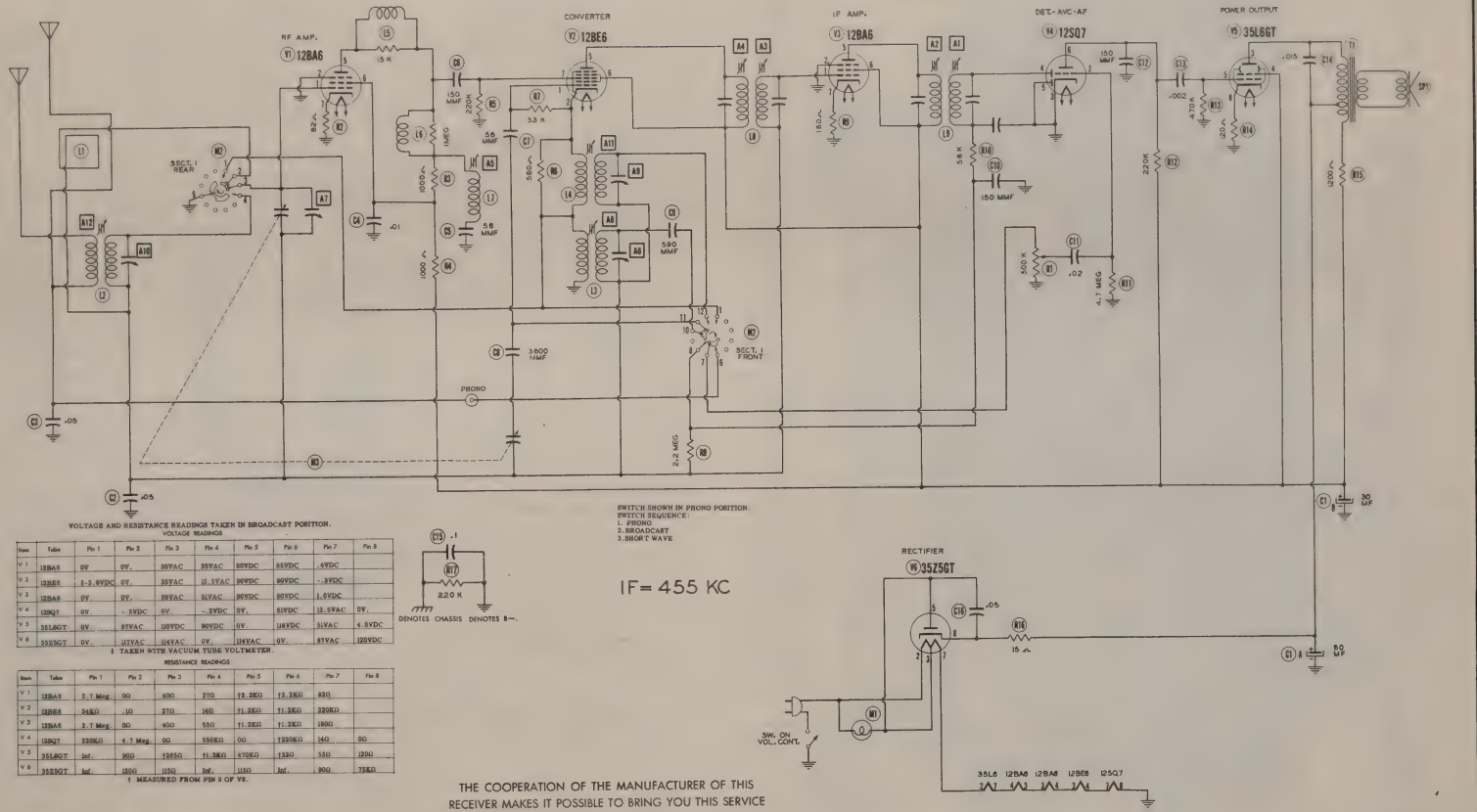
CHASSIS—BOTTOM VIEW



SET 104 FOLDER 9

RCA VICTOR MODEL 9X652

RCA VICTOR MODEL 9X652



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12BA6	0V	0V.	38VAC	35VAC	90VDC	86VDC	.4VDC	
V 2	12BE6	1-3.6VDC	0V.	35VAC	12.5VAC	90VDC	90VDC	-.3VDC	
V 3	12BA6	0V.	0V.	38VAC	61VAC	90VDC	80VDC	1.6VDC	
V 4	12SQ7	0V.	- .5VDC	0V.	-.2VDC	0V.	61VDC	12.5VAC	0V.
V 5	35L6GT	0V.	87VAC	110VDC	90VDC	0V.	108VDC	5.1VAC	4.8VDC
V 6	35Z5GT	0V.	117VAC	114VAC	0V.	114VAC	0V.	87VAC	120VDC

† TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12BA6	2.7 Meg.	0Ω	400	27Ω	13.2KΩ	13.2KΩ	63Ω	
V 2	12BE6	34KΩ	1Ω	27Ω	14Ω	11.2KΩ	11.2KΩ	220KΩ	
V 3	12BA6	2.7 Meg.	0Ω	400	53Ω	11.2KΩ	11.2KΩ	180Ω	
V 4	12SQ7	330KΩ	4.7 Meg.	0Ω	550KΩ	0Ω	1230KΩ	1Ω	0Ω
V 5	35L6GT	Inf.	90Ω	1265Ω	11.2KΩ	470KΩ	123Ω	53Ω	120Ω
V 6	35Z5GT	Inf.	1200	115Ω	Inf.	115Ω	Inf.	90Ω	75KΩ

† MEASURED FROM PIN 8 OF V6.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PHOTOFACT* Folder

SILVERTONE MODELS

125 (CH. 478.257), 9125A (CH. 478.253)

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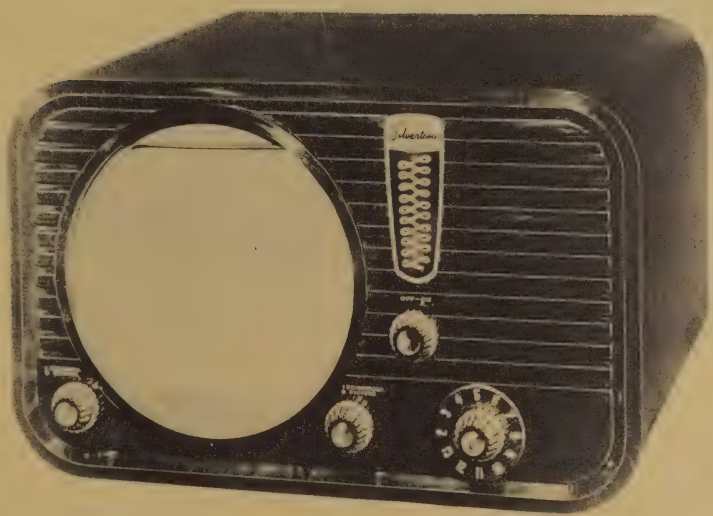

MODEL 9125A

SILVERTONE MODELS
125 (CH. 478.257), 9125A (CH. 478.253)

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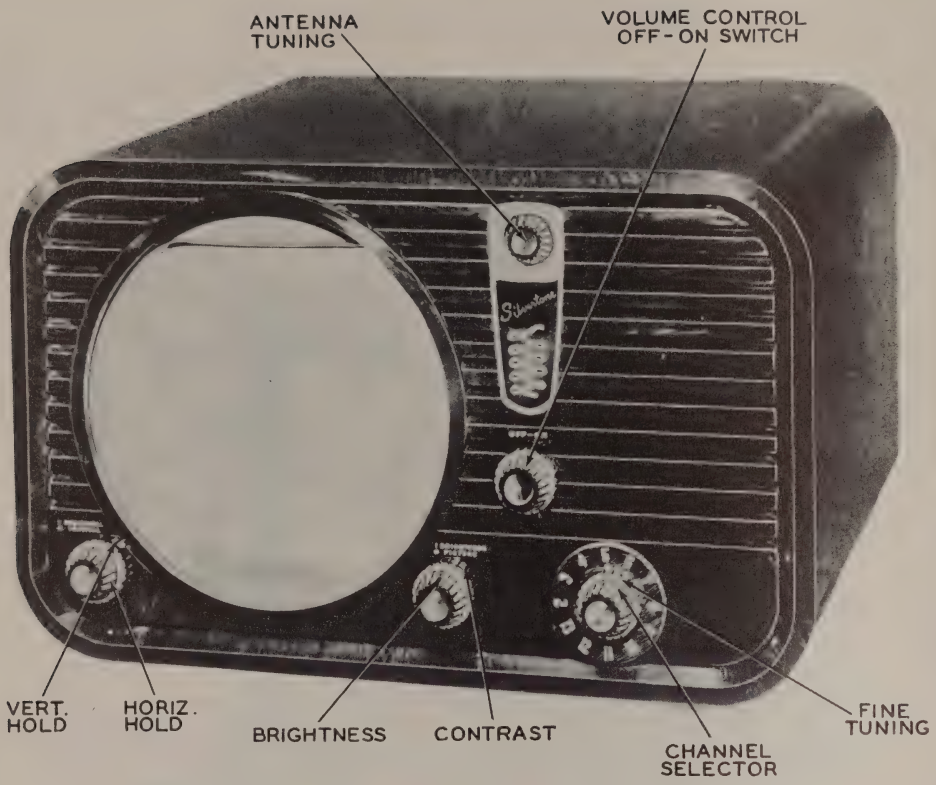
SILVERTONE MODELS 125 (Ch. 478.257), 9125A (Ch. 478.253)



SILVERTONE MODEL 9125A

TRADE NAME	Silvertone, Models 125 (Ch. 478.257), 9125A (Ch.478.253)
MANUFACTURER	Sears Roebuck and Co., 925 S. Homan St. Chicago, Illinois
TYPE SET	Television Receiver
TUBES	Twenty One
POWER SUPPLY	105-125 Volts AC - 60 Cycle
RATING	2.1 Amp. at 117 Volts AC
TUNING RANGE—	Channels 2 thru 13

INDEX

Alignment Instructions 6
Disassembly Instructions 13
Fine Tuning Drive Cord Stringing 13
Horizontal Sweep Circuit Adjustment 10
Parts List and Description 14, 15, 16
Photographs
Cabinet-Rear View 10
Capacitor Identification 11, 18
Photographs (continued)
Chassis-Top View 3, 13
RF Tuner 7
Resistor Identification 12, 17
Trans., Inductor and Alignment Identification 4, 9
Schematic 2
Tube Placement Chart 5
Voltage and Resistance Measurements 8

SILVERTONE MODELS 125 (Ch. 478.257), 9125A (Ch. 478.253)

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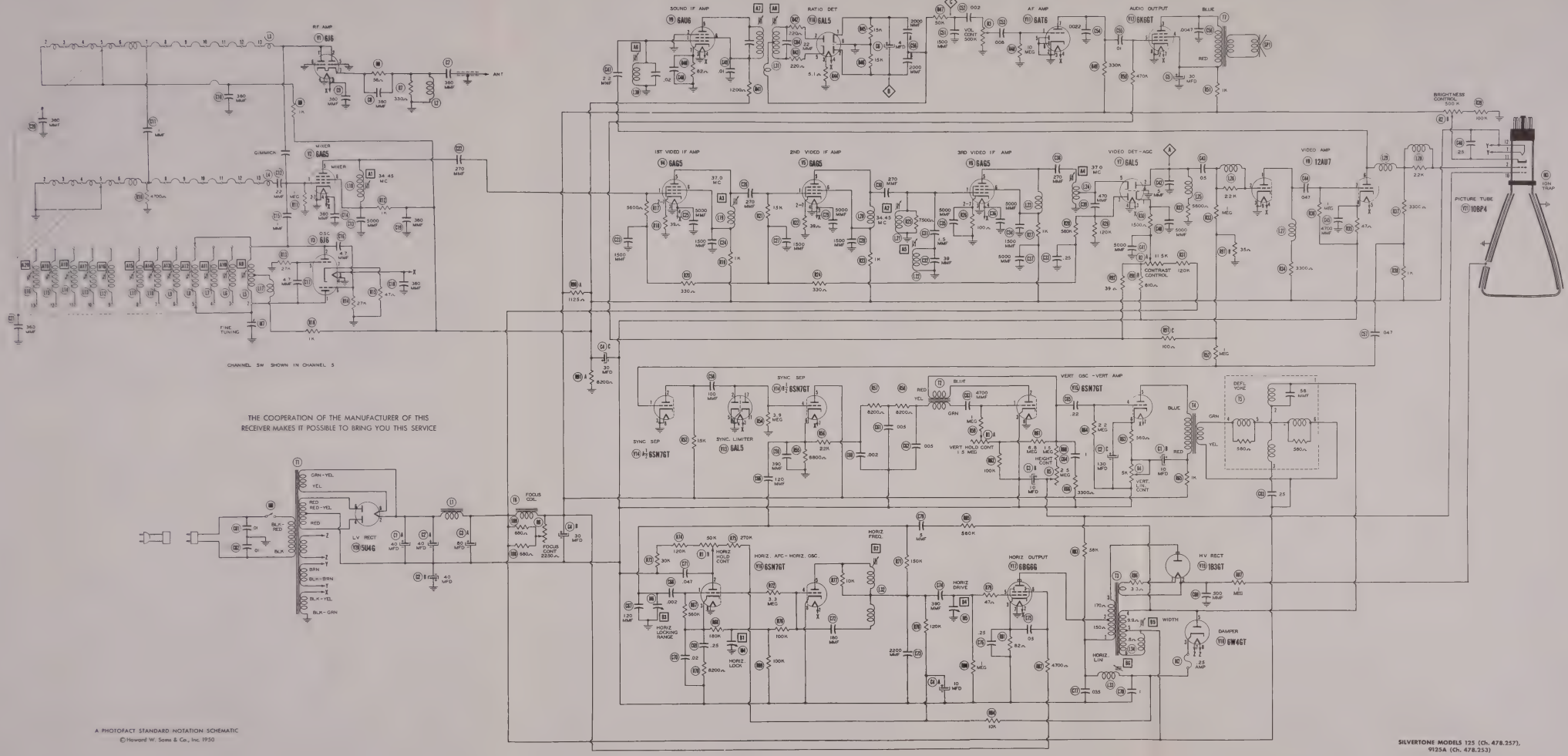

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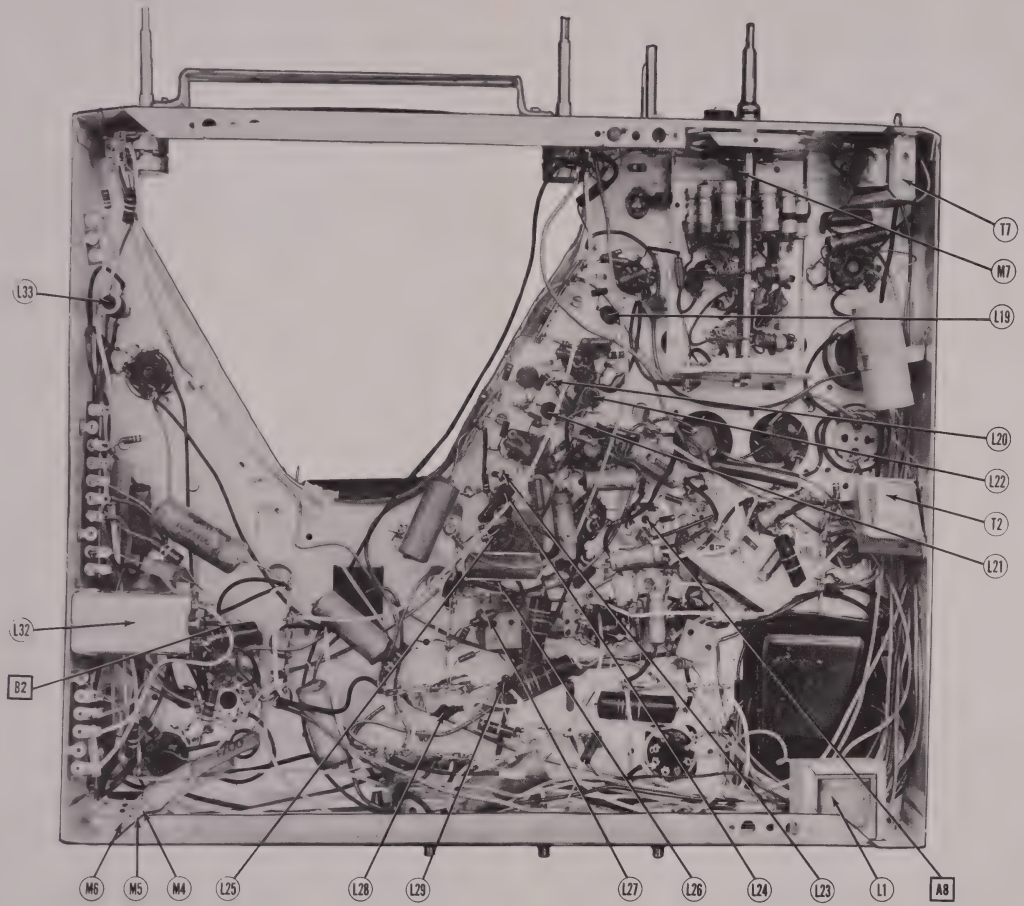
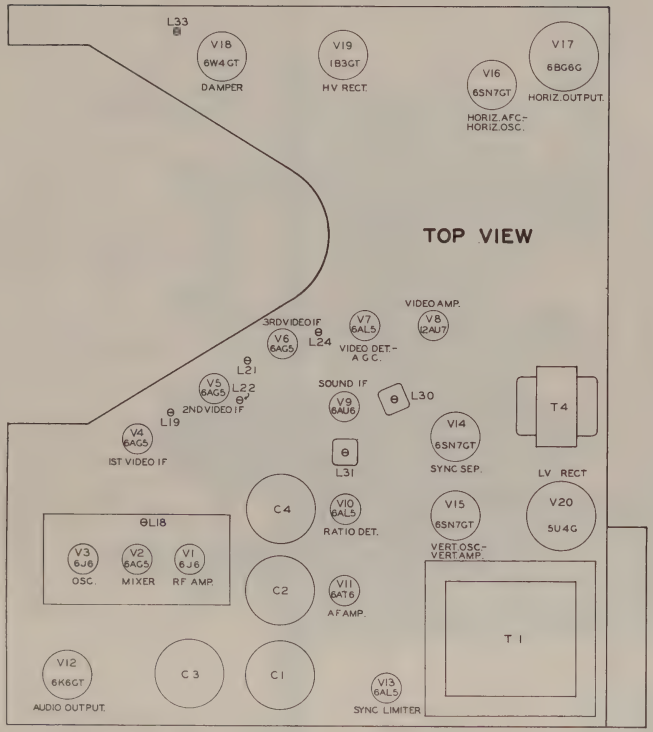
SILVERTONE MODELS 125 (Ch. 478.257), 9125A (Ch. 478.253)

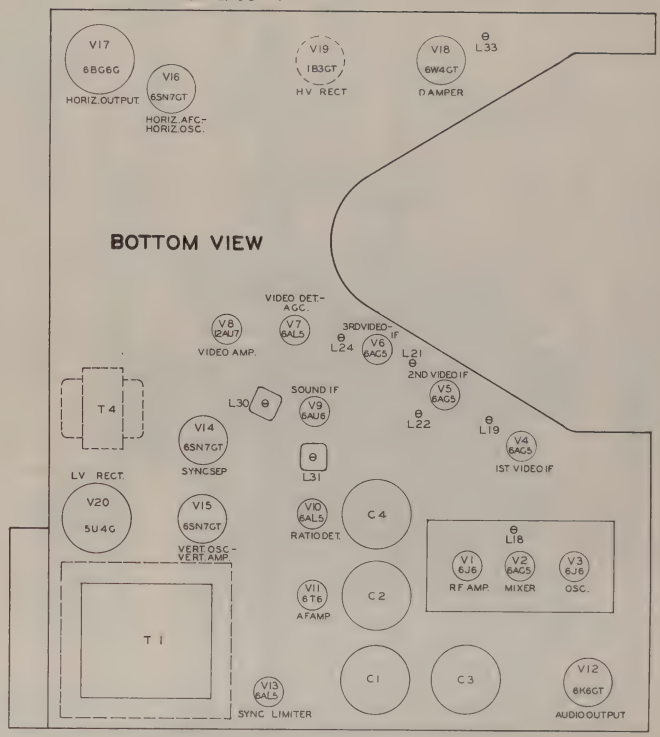
SILVERTONE MODELS 125 (Ch. 478.257), 9125A (Ch. 478.253)

CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V16) from its socket.

VIDEO IF ALIGNMENT

Set the contrast control to read -2 volts on a VTVM connected between pin 7 of V7 and chassis.
Attenuate the signal generator to maintain a reading of 1.5 volts.
Remove the local oscillator tube (V3) from its socket to prevent erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	34.45MC (Unmod.)	Any	DC Probe to Point (A). Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	Direct	"	37MC	"	"	A3, A4	"
3.	Direct	"	32.8MC	"	"	A5	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Direct	High side to ungrounded tube shield floating over converter tube (V2). Low side to chassis.	35MC (10MC SWP)	32.8MC 34.45MC 37.0MC 37.3MC	Any	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.01MFD	High side to pin 7 (Grid) of 12AU7 (V8). Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe to Point (B). Common to chassis.	A6, A7	Adjust for maximum deflection.
6.	.01MFD	"	"	"	DC Probe to Point (C). Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.01MFD	High side to pin 7 (Grid) of 12AU7 (V8). Low side to chassis.	4.5MC (450KC Sweep)	4.5MC	Any	Vert. Amp. to Point (B). Low side to chassis.	A6, A7	Disconnect stabilizer capacitor C6. Adjust for maximum amplitude and symmetry as per figure 2. Then reconnect C6.
6.	.01MFD	"	"	"	"	Vert. Amp. to Point (C). Low side to chassis.	A8	Adjust A8 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Keep the output of the sweep generator as low as possible to prevent overloading.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to ungrounded antenna terminal. Low side to chassis.	57MC (10MC SWP)	55.25MC 59.75MC	2	Vert. Amp. to Point (A). Low side to chassis.	A9	Adjust to place sound marker as shown in figure 4. The video marker should fall between 45% and 60%. If the video carrier does not fall between 45% and 60% on all channels. Turn to channel 6 and retouch the video IF coils (A1 thru A4).
			63MC (10MC SWP)	61.25MC 65.75MC	3		A10	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A11	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A12	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A13	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A14	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A15	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A16	
			195MC (10MC SWP)	193.25MC 195.75MC	10		A17	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A18	
			207MC (10MC SWP)	205.25MC 209.75MC	12		A19	
			213MC (10MC SWP)	211.25MC 215.75MC	13		A20	

THE RF AND MIXER PORTIONS OF THIS RECEIVER HAVE BEEN PRE-SET AT THE FACTORY AND ARE NORMALLY VERY STABLE. THEY SHOULD NOT REQUIRE ADJUSTMENT IN THE FIELD.

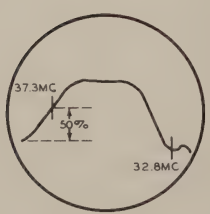


FIG. 1

FIG. 2

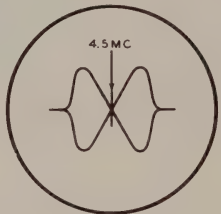
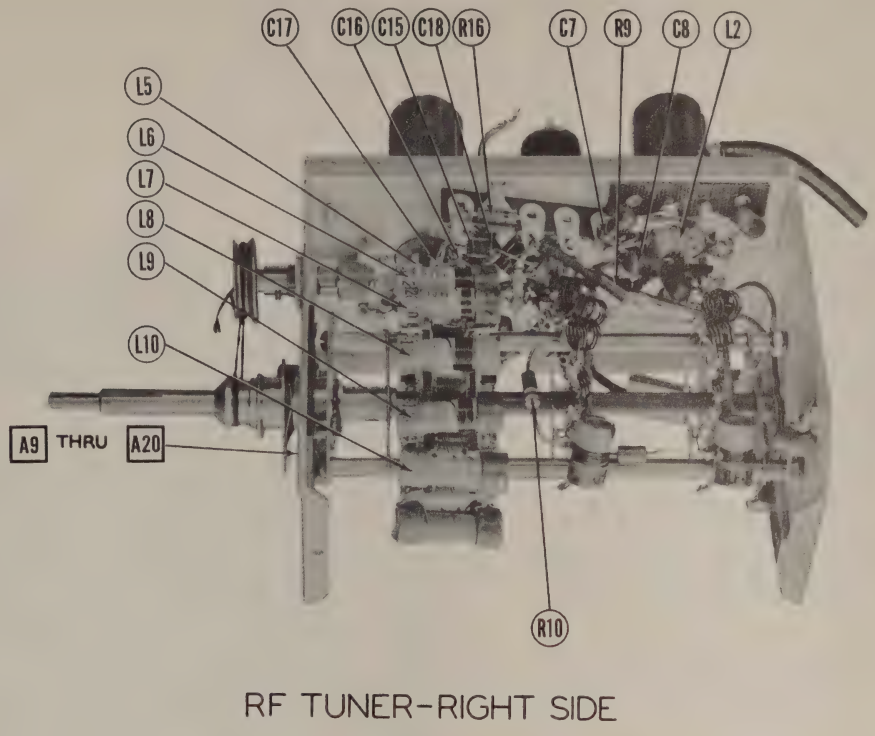
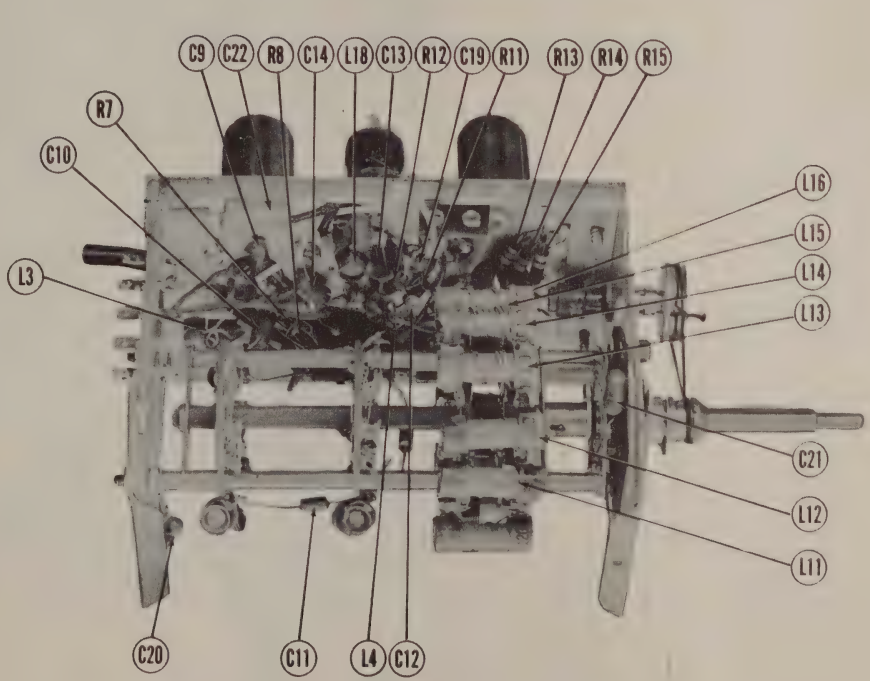


FIG. 3

FIG. 4



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	150VDC	150VDC	6.3VAC	0V.	0V.	0V.	0V.		
V 2	6AG5	-3.4VDC	0V.	6.3VAC	0V.	125VDC	125VDC	0V.		
V 3	6J6	115VDC	115VDC	6.3VAC	0V.	$-1.1VDC	$-3.4VDC	.4VDC		
V 4	6AG5	-5.3VDC	0V	0V.	6.3VAC	130VDC	130VDC	0V.		
V 5	6AG5	-5.3VDC	0V.	6.3VAC	0V.	130VDC	130VDC	0V.		
V 6	6AG5	0V.	1.2VDC	0V.	6.3VAC	120VDC	120VDC	1.2VDC		
V 7	6AL5	-20VDC	-.1VDC	6.3VAC	0V	0V.	0V.	-20VDC		
V 8	12AU7	115VDC	-.7VDC	0V.	6.3VAC	6.3VAC	60VDC	-90VDC	-90VDC	0V.
V 9	6AU6	0V.	0V.	0V.	6.3VAC	115VDC	115VDC	.8VDC		
V 10	6AL5	0V.	0V.	1.2VAC	6.3VAC	-.1VDC	0V.	-.1VDC		
V 11	6AT6	-.4VDC	0V.	0V.	6.3VAC	0V.	0V.	70VDC		
V 12	6K6GT	245VDC	0V.	205VDC	215VDC	-5.5VDC	-16VDC	6.3VAC	0V.	
V 13	6AL5	0V.	-.5VDC	6.3VAC	0V	0V.	0V.	0V.		
V 14	6SN7GT	-.6VDC	145VDC	0V.	-.5VDC	245VDC	11VDC	6.3VAC	0V.	
V 15	6SN7GT	-95VDC	60VDC -.4VDC	-90VDC	-60VDC	235VDC	75VDC 80VDC	6.3VAC	0V.	
V 16	6SN7GT	-85VDC	15VDC	-95VDC	-140VDC	65VDC	-95VDC	6.3VAC	0V:	
V 17	6BG6G	0V.	6.3VAC	-90VDC	0V.	-95VDC	0V.	0V	195VDC	TOP CAP *
V 18	6W4GT	0V.	0V.	345VDC	0V.	275VDC	0V.	¶	¶	
V 19	1B3GT	* DO NOT MEASURE.								
V 20	5U4G	0V.	290VDC	0V.	380VAC	0V.	380VAC	0V.	290VDC	
V 21	10BP4	¶	65VDC	PIN 10 340VDC	PIN 11 255VDC	PIN 12 ¶				

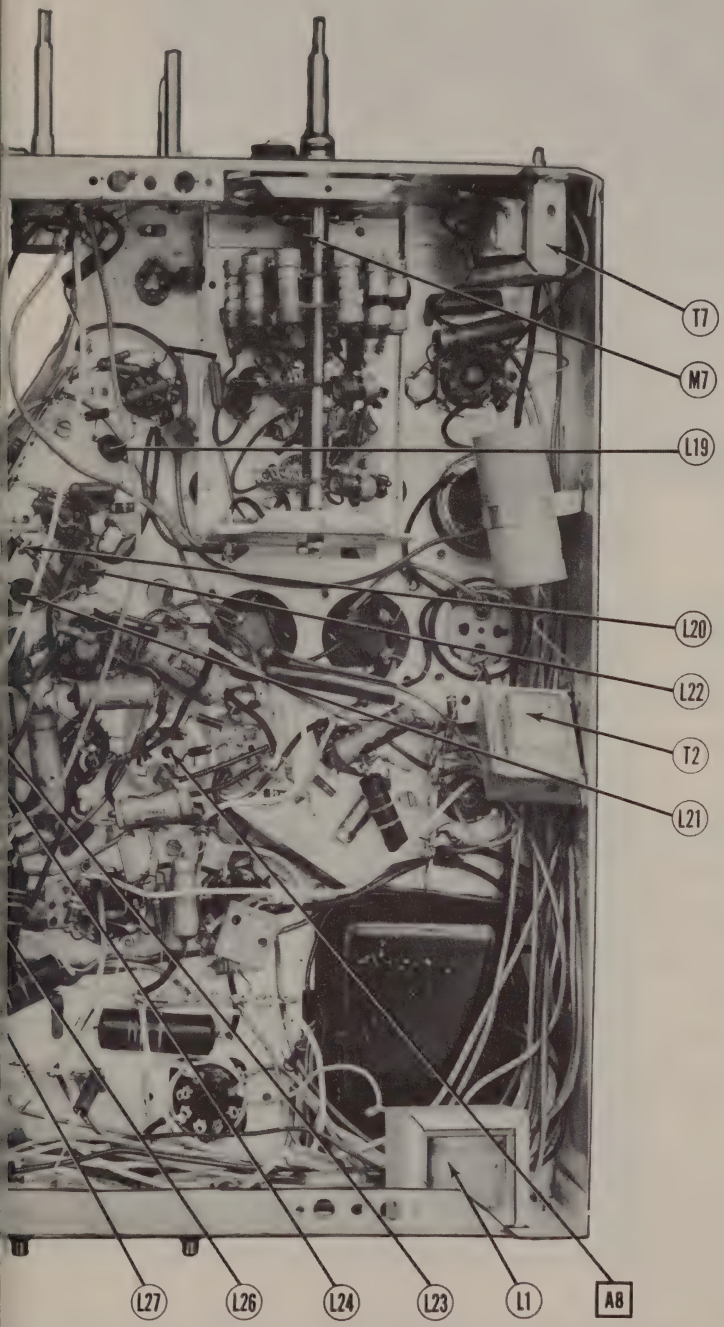
FOCUS CONTROL IN FULLY COUNTERCLOCKWISE POSITION.
* DO NOT MEASURE.
$ TAKEN WITH VACUUM TUBE VOLTMETER.
¶ 6.3 VAC MEASURED ACROSS FILAMENTS.

RESISTANCE READINGS

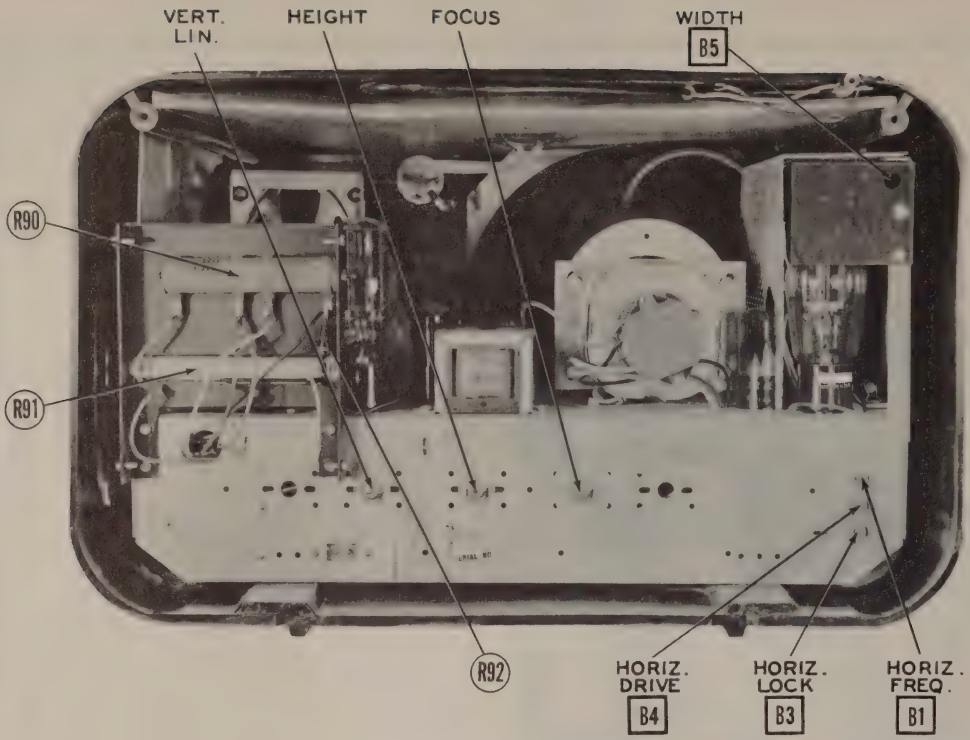
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†2.8KΩ	†2.8KΩ	.1Ω	0Ω	0Ω	0Ω	56Ω		
V 2	6AG5	1 Meg.	0Ω	.1Ω	0Ω	†2.3KΩ	†2.3KΩ	0Ω		
V 3	6J6	†2.3KΩ	†2.3KΩ	.1Ω	0Ω	27KΩ	27KΩ	47Ω		
V 4	6AG5	685KΩ	39Ω	0Ω	.1Ω	†2.3KΩ	†2.3KΩ	39Ω		
V 5	6AG5	695KΩ	39Ω	.1Ω	0Ω	†2.3KΩ	†2.3KΩ	39Ω		
V 6	6AG5	.1Ω	100Ω	0Ω	.1Ω	†2.3KΩ	†2.3KΩ	100Ω		
V 7	6AL5	1.6KΩ	5.6KΩ	.1Ω	0Ω	0Ω	0Ω	120KΩ		
V 8	12AU7	†4.7KΩ	1 Meg.	0Ω	.1Ω	.1Ω	†5.6KΩ	1 Meg.	830Ω	0Ω
V 9	6AU6	1.4Ω	0Ω	0Ω	.1Ω	†2.9KΩ	†2.9KΩ	82Ω		
V 10	6AL5	15KΩ	15KΩ	2.1Ω	.1Ω	Inf.	0Ω	Inf.		
V 11	6AT6	10 Meg.	0Ω	0Ω	.1Ω	0Ω	0Ω	†330KΩ		
V 12	6K6GT	†200Ω	0Ω	†1.6KΩ	†1.2KΩ	470KΩ	140Ω	.1Ω	0Ω	
V 13	6AL5	Inf.	3.9 Meg.	.1Ω	0Ω	0Ω	0Ω	Inf.		
V 14	6SN7GT	1 Meg.	†15KΩ	0Ω	3.9 Meg.	†210Ω	6.8 KΩ	.1Ω	0Ω	
V 15	6SN7GT	2 Meg.	#1.5 Meg. #3 Meg.	780Ω	2.2 Meg.	†1.8KΩ	6.3KΩ 1.3KΩ	.1Ω	0Ω	
V 16	6SN7GT	750KΩ	150KΩ	280KΩ	200KΩ	#130KΩ	780Ω	.1Ω	0Ω	
V 17	6BG6G	Inf.	.1Ω	860Ω	Inf.	1 Meg.	Inf.	0Ω	†4.9KΩ	TOP CAP #225Ω
V 18	6W4GT	Inf.	Inf.	#0Ω	Inf.	†60Ω	Inf.	Inf.	Inf.	
V 19	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #400Ω
V 20	5U4G	Inf.	10KΩ	Inf.	800Ω	Inf.	800Ω	Inf.	10KΩ	
V 21	10BP4	8.2KΩ	†5.6KΩ	PIN 10 #56KΩ	PIN 11 9KΩ	PIN 12 8.2KΩ				

FOCUS CONTROL IN FULLY COUNTERCLOCKWISE POSITION.
† MEASURED FROM PIN 2 OF V20.
# MEASURED FROM PIN 3 OF V18.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



TOR AND ALIGNMENT IDENTIFICATION



CABINET- REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK:

Tune in a test pattern and turn the horizontal hold control to maximum counter-clockwise, the picture should remain in synchronization. Momentarily interrupt the signal by switching to another channel and back again, the picture should now be out of synchronization. Turn the hold control slowly clockwise. The picture should pull into synchronization after approximately 90° of rotation, and should remain in synchronization for an additional 90° of clockwise rotation. At the extreme clockwise position the picture should be out of synchronization and should show 3 1/2 to 4 1/2 bars sloping downward to the right. If the receiver fails to hold synchronization with the hold control in the extreme counter-clockwise position, or fails to hold after at least 60° clockwise rotation from the pull in point, it will be necessary to align the horizontal oscillator as follows:

(A) HORIZONTAL OSCILLATOR ALIGNMENT

Turn the horizontal hold control to maximum clockwise. Adjust the horizontal frequency trimmer (B1) until the picture is out of synchronization and shows 3 1/2 to 4 1/2 bars sloping downward to the right. If the trimmer has insufficient range, set it to the mid-position of its range (1 revolution counter-clockwise from tight), and adjust the horizontal frequency slug (B2) until the proper number of bars are present.

(B) HORIZONTAL LOCKING ALIGNMENT

Turn the hold control to maximum counter-clockwise. Momentarily interrupt the signal by switching to another channel and back again.

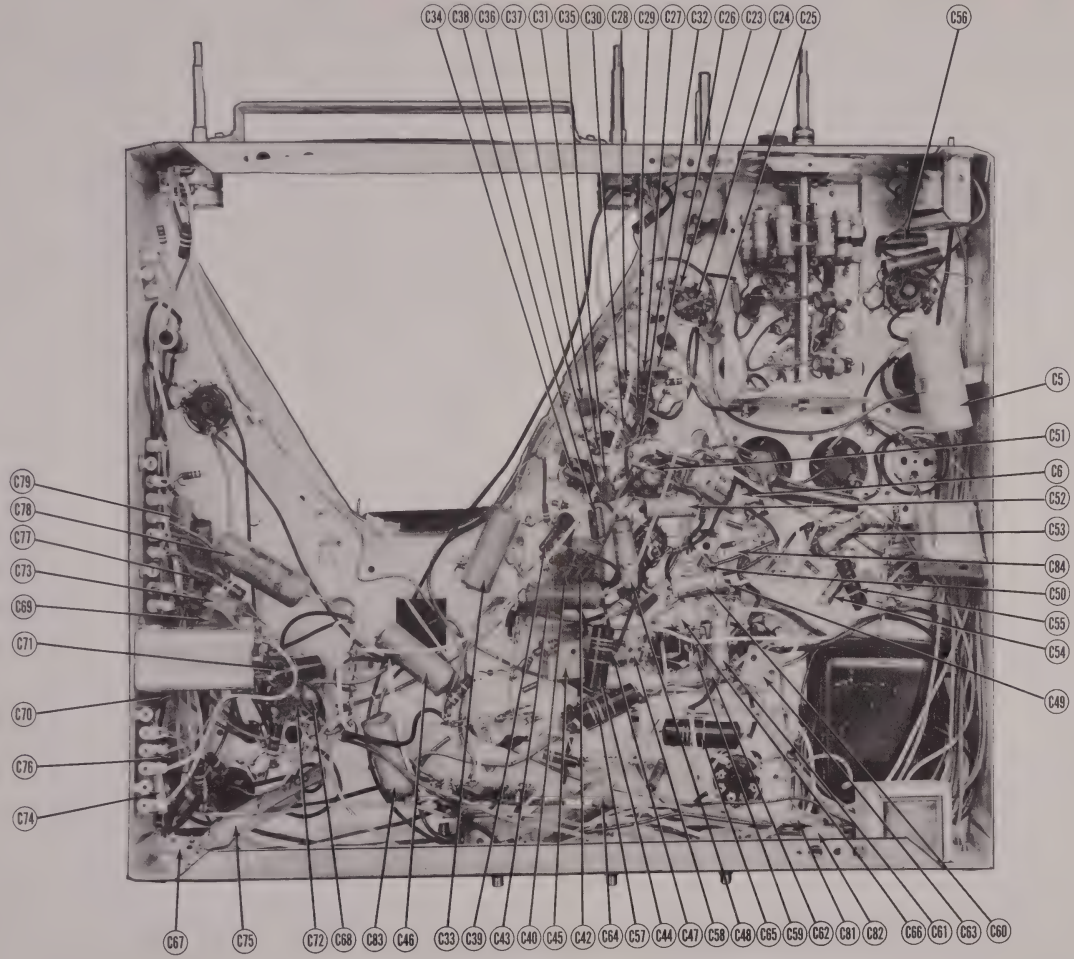
Slowly turn the hold control clockwise and carefully note the least number of diagonal bars present just before the picture pulls out of synchronization. If less than 3 1/2 bars are present turn the horizontal lock trimmer (B3) slightly counter-clockwise, if more than 4 1/2 bars are present at the pull in point turn B3 slightly clockwise. Repeat the above procedure until 3 1/2 to 4 1/2 bars are present just before pull in.

WIDTH, DRIVE, AND LINEARITY ADJUSTMENTS

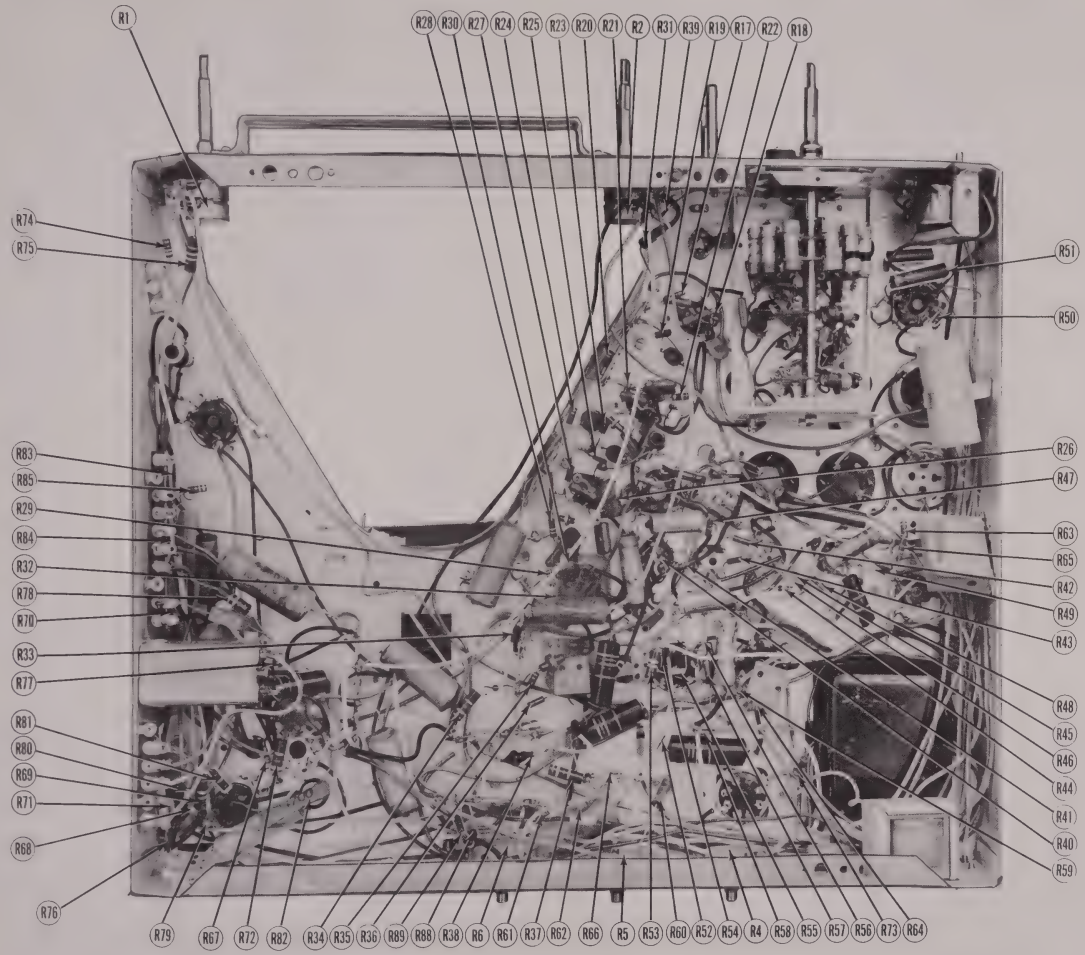
Turn the width slug (B5) to maximum clockwise.

Adjust the horizontal drive trimmer (B4) for maximum brightness with best horizontal linearity. Adjust the horizontal linearity slug (B6) for best linearity in the right half of the picture.

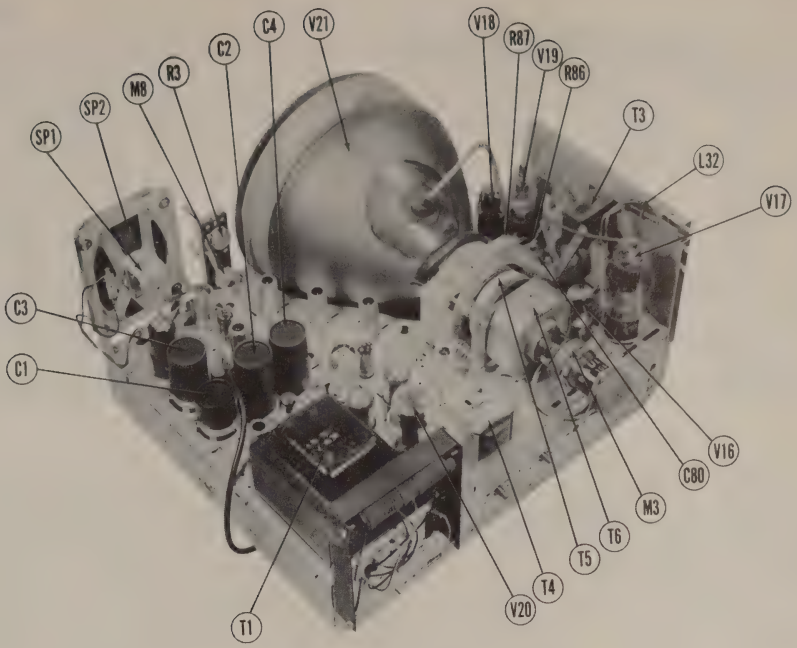
Readjust B5 until the picture fills the mask horizontally.



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS-TOP VIEW

DISASSEMBLY INSTRUCTIONS

1. Remove ten push-on type control knobs from front of set.
2. Remove four 1/4" hex head screws holding rear cover. Remove three 1/4" hex head screws holding antenna terminals. Remove rear cover.
3. Remove four 3/8" hex head bolts holding chassis. Remove chassis.

FINE TUNING DRIVE CORD STRINGING

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6J6	6J6	7BF	
V2	Mixer	6AG5	6AG5	7BD	
V3	Oscillator	6J6	6J6	7BF	
V4	1st Video IF	6AG5	6AG5	7BD	
V5	2nd Video IF	6AG5	6AG5	7BD	
V6	3rd Video IF	6AG5	6AG5	7BD	
V7	Video Det. -AGC	6AL5	6AL5	6BT	
V8	Video Amp.	12AU7	12AU7	9A	
V9	Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Det.	6AL5	6AL5	6BT	
V11	AF Amp.	6AT6	6AT6	7BT	
V12	Audio Output	6K6GT	6K6GT	7S	
V13	Sync. Limiter	6AL5	6AL5	6BT	
V14	Sync. Sep.	6SN7GT	6SN7GT	8BD	
V15	Vert. Osc.-Vert. Amp.	6SN7GT	6SN7GT	8BD	
V16	Hor. AFC-Hor. Osc.	6SN7GT	6SN7GT	8BD	
V17	Hor. Output	6BG6G	6BG6G	5BT	
V18	Damper	6W4GT	6W4GT	4CG	
V19	HV Rect.	1B3GT	1B3GT	3C	
V20	LV Rect.	5U4G	5U4G	5T	
V21	Picture Tube	10BP4	10BP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	TCE-116-D	AFH8J2H		UPTBJ720		TVL-69	▬ Filter
B	10	350							▲ Vert. Output Decoup.
C2A	40	450	TCE-117-D	AFH8J8D26B		UP9DJ887		TVL-57	▬ Filter
B	40	150							■ Filter
C	130	50							▲ Vert. Output Cath. Byp.
C3A	80	450	TCE-113-D	AFH162J		UP9BJ857		TVL-47	▬ Filter
B	10	450							▲ Vert. Osc. Decoup.
C4A	10	450	TCE-115-D	AFH2J616G		UP8CJ898		TVL-56	▬ Decoupling
B	30	400							■ Filter
C	30	300							▲ Filter
C5	30	450	TCE-136-1-D	PRS450/30		BR3045A		TVA-23	Output Decoupling
C6	4	25	TCE-104-D	PRS150/4		BR550		TVA-13	Stabilizing Cap.
C7	360		TCE-361-10	GP360M	D6-391		GP2K-360		Ant. Coupling
C8	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Cathode Bypass
C9	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Filament Bypass
C10	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Plate Decoup.
C11	1		TCC-010-11		D2-1				RF Coupling
C12	22		TCC-22-12	CN22JNPO	D2-22		NPOK-20		RF Coupling
C13	5000		TCC-502-SP	BPD-5	D6-502		811-005	29C1	Mixer Decoupling
C14	360		TCC-361-10	GP360M	D6-391		GP2K-360		Mixer Fil. Bypass
C15	1		TCC-010-11		D2-1				Osc. Coupling
C16	4.7		TCC-4.7-11	CN4.7DN750	D2-4.7		NPOK-4.7		Osc. Feedback
C17	4.7		TCC-4.7-11	CN4.7DN750	D2-4.7		NPOK-4.7		Osc. Feedback
C18	360		TCE-361-10	GP360M	D6-391		GP2K-360		Osc. Fil. Byp.
C19	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Bypass
C20	360		TCE-361-10	GP360M	D6-391		GP2K-360		Switch Strut Bypass
C21	360		TCE-361-10	GP360M	D6-391		GP2K-360		Switch Strut Bypass
C22	270	500	TCM-271-13	GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C23	1500		TCC-152-10	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	AGC Filter
C24	1500		TCC-152-10	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	1st V. IF Decoup.
C25	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	1st V. IF Fil. Bypass
C26	270	500	TCM-271-13	GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C27	1500		TCC-152-10	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	AGC Filter
C28	1500		TCC-152-10	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	2nd V. IF Decoup.
C29	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	2nd V. IF Fil. Bypass
C30	270	500	TCM-271-13	GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C31	1.5		TCC-1.5-11	C11.5CNPO	D2-1.5		NPOK-1.5		IF Coupling
C32	39	300		SI39JNPO	D2-39	5R5Q4	NPOL-39	MS-44	Fixed Trimmer
C33	.25	400	TCP-254-4	P488-25		GT4P25		TC-2	AGC Filter
C34	1500		TCC-152-10	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	3rd V. IF Decoup.
C35	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	3rd V. IF Cath. Byp.
C36	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	3rd V. IF Fil. Byp.
C37	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	RF Bypass
C38	270	500	TCM-271-13	GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C39	470		TCC-471-10	GP470M	D6-471	5W5T5	GP2K-470	1FM-35	IF Coupling
C40	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	DAGC Decoupling
C41	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	DAGC Decoupling *
C42	5	300	TCC-050-11	GP5K	D2-4.7	5W5V5	NPOK-5	MS-55	V. Diode Filter
C43	.05	600	TCP-503-10	P688-05		PTE6S5		TM-15	Video Coupling
C44	.047	600	TCPM-503-10	P688-047		PTE6S5		TM-15	Video Coupling
C45	4700	500	TCM-472-9	1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	V. Amp. Cath. Byp.
C46	.25	400	TCP-254-4	P488-25		GT4P25		TC-2	Pic. Tube Cath. Byp.
C47	2.2		TCC-2.2-11	C12.2CNPO	D2-2.2				S. IF Coupling
C48	.02	600	TCP-203-10	P688-02		PTE6S2		TM-12	S. IF Cath. Byp.
C49	.01	600	TCPM-103-10	P688-01	D6-103	PTE6S1	811-01	TM-11	S. IF Decoup.
C50A	2000		TCC-2-1	GP2000M	D2-202	1W5D2	882-2 x 002	29C5	Diode Load Cap. †
B	2000			GP2000M	D2-202	1W5D2			Diode Load Cap. †
C51	1500		TCC-152-SP	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	De-emphasis
C52	.002	600	TCP-202-10	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C53	.008	600	TCP-103-4	P688-01	D6-103	PTE6S1	811-01	TM-11	Audio Coupling
C54	.0022	600	TCPM-202-10	P688-0022	D6-222	PTE6D2	GP2M-0022	TM-22	De-emphasis
C55	.01	600	TCP-103-4	P688-01	D6-103	PTE6S1	811-01	TM-11	Audio Coupling
C56	.0047	600	TCPM-502-10	P688-0047	D6-472	PTE6D5	GP2M-0047	TM-25	Output Plate Bypass
C57	.047	600	TCPM-503-10	P688-047		PTE6S5		TM-15	Sync. Coupling
C58	100	500	TCM-101-7	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Sync. Coupling
C59	390	500	TCM-391-14	1468-0004	D6-381	5W5T4	GP2K-390	1FM-34	Sync. Sep. Cath. Byp.
C60	.002	600	TCP-202-10	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Integrator Net.
C61	.005	600	TCP-502-10	P688-005	D6-502	PTE6D5	811-005	TM-25	Integrator Net.
C62	.005	600	TCP-502-10	P688-005	D6-502	PTE6D5	811-005	TM-25	Integrator Net.

CAPACIT

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEM: SILVERTONE PART No.	REPLACEM: AEROVOX PART No.	REPLACEM: CENTRA PART N
C63	4700	500	TCM-472-5	1467-005	D6-472
C64	.1	1000	TCP-104-13	P1088-1	
C65	.22	400	TCPM-254-4	P488-22	
C66	120	500	TCM-121-8	1468-00015	D6-121
C67	120	500	TCM-121-8	1468-00015	D6-121
C68	.002	600	TCP-202-10	P688-002	D6-202
C69	.25	400	TCP-254-4	P488-25	
C70	.02	600	TCP-203-10	P688-02	
C71	.047	600	TCPM-503-10	P688-047	
C72	180	500	TCM-181-29	1468-0002	D6-181
C73	2200	500	TCM-222-15		D6-222
C74	390	500	TCM-391-14	1468-0004	D6-391
C75	.05	1000	TCP-503-10	P1088-05	
C76	.25	400	TCP-254-4	P488-25	
C77	.035	600	TCP-353-10	P688-033	
C78	.1	1000	TCP-104-13	1084-1	
C79	5	1500	TCM-050-20		
C80	500	10000	TCC-501-SP-D		TV3-50
C81	.01	400	TCP-103-10	P488-01	D6-103
C82	.01	400	TCP-103-10	P488-01	D6-103
C83	.25	400	TCP-254-4-SP	P488-25	
C84	22			CN22KNPO	D2-22

* Not used in all models.
† When either items C50A or C50B are replaced, replace

CO

ITEM No.	RATING: RESIST-ANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAR PART
R1A	1.5 Meg.	½	TVC-114-DA	B11-139 *	
B	50KΩ	½		B11-123 *	
C	Shaft End			E-187 *	
R2A	11.5KΩ	½	TVC-519-D		
B	500KΩ	½			
R3	500KΩ	½	TVC-520-D	Q11-133	M-60
R4A	5000Ω	½	TVC-503-1D	Q11-114	AM-1
B	Shaft		Not Req.	RQ	KSS-
R5A	2.5 Meg.	½	TVC-504-1D	Q11-239	AM-1
B	Shaft		Not Req.	RQ	KSS-
R6	2250Ω	4	TVC-506-1D		10-25

* Additional parts to be used with "Concentrikit".
# File slot in shaft to duplicate original.

RES

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.
R7	330Ω 10%	½	TRC-331-2	
R8	56Ω 10%	½	TRC-560-2	
R9	1000Ω	½	TRC-102-1	BTS-1000
R10	4700Ω 5%	½	TRC-472-3	BTS-4700-5%
R11	1 Meg.	½	TRC-105-1	BTS-1 Meg.
R12	1000Ω	½	TRC-102-1	BTS-1000
R13	27KΩ	½	TRC-273-1	
R14	27KΩ	½	TRC-273-1	
R15	47Ω	½	TRC-470-1	
R16	1000Ω	½	TRC-102-1	BTS-1000
R17	5600Ω 5%	½	TRW-562-3	BTS-5600-5%
R18	39Ω 10%	½	TRC-390-2	
R19	1000Ω	½	TRC-102-1	BTS-1000
R20	330Ω	½	TRC-331-1	
R21	15KΩ 5%	½	TRC-153-3	BTS-15K-5%
R22	39Ω 10%	½	TRC-390-2	
R23	1000Ω	½	TRC-102-1	BTS-1000
R24	330Ω	½	TRC-331-1	
R25	7500Ω 5%	½	TRW-752-3	
R26	100Ω 10%	½	TRC-101-2	
R27	1000Ω	½	TRC-102-1	BTS-1000
R28	560KΩ 10%	½	TRC-564-2	BTS-560K
R29	120KΩ 10%	½	TRC-124-2	BTS-120K
R30	1500Ω	½	TRC-152-1	BTS-1500
R31	120KΩ 10%	1	TRC-124-5	BTA-120K
R32	5600Ω 5%	½	TRW-562-3	BTS-5600-5%
R33	1 Meg.	½	TRC-105-1	BTS-1 Meg.
R34	3300Ω 10%	1	TRC-332-5	BTA-3300
R35	47Ω	½	TRC-470-1	
R36	1 Meg.	½	TRC-105-1	BTS-1 Meg.
R37	3300Ω 10%	1	TRC-332-5	BTA-3300
R38	1000Ω 10%	½	TRC-102-2	BTS-1000
R39	100KΩ 10%	½	TRC-104-2	BTS-100K
R40	82Ω 10%	½	TRC-820-2	
R41	1200Ω	½	TRC-122-1	BTS-1200
R42	220Ω	½	TRC-221-1	
R43	220Ω	½	TRC-221-1	
R44	5.1Ω 10%	½	TRC-51-A-2	
R45	15KΩ 5%	½	TRC-153-3	BTS-15K-5%
R46	15KΩ 5%	½	TRC-153-3	BTS-15K-5%
R47	47KΩ	½	TRC-473-1	BTS-47K
R48	10 Meg.	½	TRC-106-1	BTS-10 Meg.
R49	330KΩ	½	TRC-334-1	BTS-330K
R50	470KΩ	½	TRC-474-1	BTS-470K
R51	1000Ω	½	TRC-102-5	BT-2-1000
R52	1 Meg.	½	TRC-105-1	BTS-1 Meg.
R53	15KΩ 10%	1	TRC-153-4	BTA-15K
R54	3.9 Meg. 10%	½	TRC-395-2	BTS-3.9 Meg
R55	6800Ω	½	TRC-682-1	BTS-6800

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6F8	6J8	TB9	
V2	Mixer	6AG5	6AG5	TBD	
V3	Oscillator	6J8	6J8	TB9	
V4	1st Video IF	6AG5	6AG5	TBD	
V5	2nd Video IF	6AG5	6AG5	TBD	
V6	3rd Video IF	6AG5	6AG5	TBD	
V7	Video Det. AGC	6AL5	6AL5	6BT	
V8	Video Amp.	12AU7	12AU7	9A	
V9	Sound IF Amp.	6AU8	6AU8	TBE	
V10	Ratio Det.	6AL5	6AL5	6BT	
V11	AF Amp.	6AT8	6AT8	TBT	
V12	Audio Output	6K8GT	6K8GT	T8	
V13	Sync. Limiter	6AL5	6AL5	6BT	
V14	Sync. Sep.	6SN7GT	6SN7GT	8BD	
V15	Vert. Osc. -Vert. Amp.	6SN7GT	6SN7GT	8BD	
V16	Hor. AFC- Hor. Osc.	6SN7GT	6SN7GT	8BD	
V17	Hor. Output	6BG6G	6BG6G	5BT	
V18	Damper	6W4GT	6W4GT	4CG	
V19	HV Rect.	1B3GT	1B3GT	1C	
V20	LV Rect.	5U4G	5U4G	5T	
V21	Picture Tube	10BP4	10BP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	TCE-116-D	AFH8J2R		UPT8J720		TVL-89	▲ Filter ▲ Vert. Output Decoup.
B	10	350							▲ Filter
C2A	40	450	TCE-117-D	AFH8J4D26B		UP9DJ687		TVL-57	▲ Filter ■ Filter
B	40	150							▲ Vert. Output Cath. Byp.
C	30	50							
C3A	40	450	TCE-113-D	AFH8G3J		UP9BJ857		TVL-47	▲ Filter ▲ Vert. Osc. Decoup.
B	40	450							▲ Decoupling
C4A	10	450	TCE-115-D	AFH3JG1GG		UP8CJ898		TVL-56	▲ Decoupling ■ Filter
B	50	400							▲ Filter
C	30	450							
C5	30	450	TCE-136-1-D	PRS450/30		BR3045A		TVA-23	Output Decoupling
C6	4	25	TCE-104-D	PRS150/4		BR550		TVA-13	Stabilizing Cap.
C7	360		TCE-361-10	GP360M	D6-391		GP2K-360		Ant. Coupling
C8	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Cathode Bypass
C9	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Filament Bypass
C10	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Plate Decoup.
C11	1		TCE-010-11		D2-1				RF Coupling
C12	22		TCE-23-12	CH22JNPO	D6-22		NPOK-20		RF Coupling
C13	5000		TCE-502-SP	BPD-5	D6-502		81L-005	29C1	Mixer Decoupling
C14	360		TCE-361-10	GP360M	D6-391		GP2K-360		Mixer Fil. Bypass
C15	1		TCE-010-11		D2-1				Osc. Coupling
C16	4.7		TCE-4.7-11	CH4.7DN750	D3-4.7		NPOK-4.7		Osc. Feedback
C17	4.7		TCE-4.7-11	CH4.7DN750	D3-4.7		NPOK-4.7		Osc. Feedback
C18	360		TCE-361-10	GP360M	D6-391		GP2K-360		Osc. Fil. Byp.
C19	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Bypass
C20	360		TCE-361-10	GP360M	D6-391		GP2K-360		Switch Strut Bypass
C21	360		TCE-361-10	GP360M	D6-391		GP2K-360		Switch Strut Bypass
C22	370	500	TCM-371-13	GP370M	D6-371	SW5T25	GP2K-370	1FM-325	IF Coupling
C23	1500		TCC-152-10	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	AGC Filter
C24	1500		TCC-152-10	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	1st V. IF Decoup.
C25	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	81L-005	29C1	1st V. IF Fil. Bypass
C26	200	500	TCM-271-13	GP270M	D6-271	SW5T25	GP2K-270	1FM-325	IF Coupling
C27	1500		TCC-152-10	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	AGC Filter
C28	1500		TCC-152-10	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	2nd V. IF Decoup.
C29	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	81L-005	29C1	2nd V. IF Fil. Bypass
C30	270	500	TCM-271-13	GP270M	D6-271	SW5T25	GP2K-270	1FM-325	IF Coupling
C31	1.5		TCC-1.5-11	CH 5CNPO	D2-1.5		NPOL-1.5		IF Coupling
C32	39			BR39NPO	D2-39	SR5Q4	NPOJ-39	MS-44	Fixed Trimmer
C33	25	400	TCP-254-4	P488-25		GT4P25		TC-2	AGC Filter
C34	1500		TCC-152-10	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	3rd V. IF Decoup.
C35	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	81L-005	29C1	3rd V. IF Cath. Byp.
C36	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	81L-005	29C1	3rd V. IF Fil. Byp.
C37	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	81L-005	29C1	RF Bypass
C38	270	500	TCM-271-13	GP270M	D6-271	SW5T25	GP2K-270	1FM-325	IF Coupling
C39	470		TCM-471-13	GP470M	D6-471	SW5T5	GP2K-470	1FM-35	IF Coupling
C40	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	81L-005	29C1	DAGC Decoupling
C41	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	81L-005	29C1	DAGC Decoupling *
C42	5	300	TCC-050-11	GP5E	D2-4.7	5W5Y5	NPOK-5	MS-55	Y. Diode Filter
C43	.05	600	TCP-503-10	P688-05		PTE8S5		TM-15	Video Coupling
C44	.047	600	TCPM-503-10	P688-047		PTE8S5		TM-15	Video Coupling
C45	4700	500	TCP-472-9	1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	V. Amp. Cath. Byp.
C46	.25	400	TCP-254-4	P488-25		GT4P25		TC-2	Pic. Tube Cath. Byp.
C47	3.2		TCC-3.2-11	CH 3CNPO	D3-3.2				S. IF Coupling
C48	.02	600	TCP-203-10	P688-02		PTE8S2			S. IF Cath. Byp.
C49	470	500	TCPM-103-10	P688-01	D6-103	PTE8S1	81L-01	TM-11	S. IF Decoup.
C50A	2000		TCC-2-11	GP2000M	D2-202	1WS02	582-2 x 002	29C5	Diode Load Cap. †
B	2000			GP2000M	D2-202	1WS02			Diode Load Cap. †
C51	1600		TCC-152-SP	GP1500M	D6-152	1WS015	GP2L-0015	1FM-215	De-emphasis
C52	.002	600	TCP-202-10	P688-002	D6-202	PTE8D2	GP2M-002	TM-22	Audio Coupling
C53	.008	600	TCP-103-4	P688-01	D6-103	PTE8S1	81L-01	TM-11	Audio Coupling
C54	.0022	600	TCPM-202-10	P688-0022	D6-222	PTE8D2	GP2M-0022	TM-22	De-emphasis
C55	.01	600	TCP-103-4	P688-01	D6-103	PTE8S1	81L-01	TM-11	Audio Coupling
C56	.0047	600	TCPM-502-10	P688-0047	D6-472	PTE8D5	GP2M-0047	TM-25	Output Plate Bypass
C57	.047	600	TCPM-503-10	P688-047		PTE8S5		TM-15	Sync. Coupling
C58	100	500	TCM-101-7	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Sync. Coupling
C59	390	500	TCM-391-14	1468-0004	D6-381	5W5T4	GP2K-390	1FM-34	Sync. Sep. Cath. Byp.
C60	.002	600	TCP-202-10	P688-002	D6-202	PTE8D2	GP2M-002	TM-22	Integrator Net.
C61	.005	600	TCP-502-10	P688-005	D6-502	PTE8D5	81L-005	TM-25	Integrator Net.
C62	.005	600	TCP-502-10	P688-005	D6-502	PTE8D5	81L-005	TM-25	Integrator Net.

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C63	4700	500	TCM-473-5	1497-005		D8-472	1D5D5	GP2M-0047	1FM-25 Vert. Osc. Grid Cap.
C64	.1	1000	TCP-104-13	P1068-1					Vert. Discharge
C65	.22	400	TCPM-254-4	P488-22			GT4P25		TC-2 Vert. Sweep Coup.
C66	120	500	TCM-121-8	1468-0001S	D6-121		5W5T15	GP2K-120	1FM-315 Hor. Sync. Coup.
C67	130	500	TCM-131-8	1468-0001S	D6-131		5W5T15	GP2K-130	1FM-315 Voltage Divider
C68	.002	600	TCP-203-10	P588-002	D6-202		PTE8D2	GP2M-002	TM-22 Hor. Sync. Coup.
C69	25	400	TCP-254-4	P488-25			GT4P25		TC-2 AFC Filter
C70	.01	600	TCP-203-10	P588-02			PTE8S2		TM-12 Voltage Divider
C71	.047	600	TCPM-503-10	P688-047			PTE8S5		TM-15 Hor. AFC Plate Byp.
C72	180	500	TCM-181-8	1468-0002	D6-181		5W5T3	GP2K-180	1FM-32 Hor. Osc. Grid Cap.
C73	3300	500	TCM-332-15		D6-332		GT4P25	GP2K-0023	Hor. Discharge
C74	390	500	TCM-391-14	1468-0004	D6-391		5W5T4	GP2K-390	1FM-34 Hor. Sweep Coupling
C75	.01	1000	TCP-503-10	P1068-05			GT4S25		TR-15 Hor. Output Screen Byp.
C76	.25	400	TCP-254-4	P488-25			GT4P25		TC-2 Hor. Output Cath. Byp.
C77	.035	800	TCP-353-10	P588-033		TV3-501			Damper Filter
C78	.1	1000	TCP-104-13	1084-1					Damper Filter
C79	5	1500	TCM-050-20						Hor. Feedback
C80	500	10000	TCC-501-SP-D			TV3-501			HV Filter
C81	.01	400	TCP-103-10	P488-01	D6-103	PTE4S1	81L-01	TM-11	Line Filter
C82	.01	400	TCP-103-10	P488-01	D6-103	PTE4S1	81L-01	TM-11	Line Filter
C83	.25	400	TCP-254-4-SP	P488-25		GT4P25		TC-2	Hor. Sweep Coupling
C84	.22		CN22EKNPO	D2-22		5R5Q2	NPOK-20	MS-42	Fixed Trimmer *

* Not used in all models.
† When either items C50A or C50B are replaced, replace both with capacitors of equal value.

CONTROLS

ITEM No.	RATING: RESIST. ANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1.5 Meg.			Bil-139 *			Vert. hold control-front
B	50KΩ		TVC-114-DA	Bil-123 *		SBB-586	Horiz. hold control-rear
C	Shaft End			E-187 *			Attach per instr. in "Concentrikit".
R2A	11.5KΩ						Contrast control-front
B	500KΩ		TVC-519-D			SBB-585	Brightness control-rear
R3	500KΩ		TVC-520-D	QII-133	M-50-Z	B-60	Volume control
R4A	5000Ω		TVC-503-1D	QII-114	AM-19-S	AN-10	Vert. linearity control
B	Shaft		TVC-503-2D	RQ	ESB-3 #	AK-1	Attach to R4A per instructions
R5A	2.5 Meg.		TVC-504-1D	QII-239	AM-84-S	AN-83	Height control
B	Shaft		Not Req.	RQ	ESB-3 #	AK-1	Attach to R5A per instructions
R6	2250Ω	4	TVC-506-1D		10-2500 #	SVB-926	Focus control-Wire Wound

* Additional parts to be used with "Concentrikit".
# File slot in shaft to duplicate original.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 20% UNLESS OTHERWISE STATED.
R7	330Ω 10%	½	TRC-331-2		RF Cathode
R8	560 10%	½	TRC-560-2		Parasitic Supp.
R9	100Ω	½	TRC-101-1	BTS-1000	RF Plate Decoupling
R10	4700Ω 5%	½	TRC-472-3	BTS-4700-5%	Mixer Grid Coil Shunt
R11	1 Meg.	½	TRC-105-1	BTS-1 Meg.	Mixer Grid
R12	1000Ω	½	TRC-102-1	BTS-1000	Mixer Decoupling
R13	27KΩ	½	TRC-273-1		Osc. Grid
R14	27KΩ	½	TRC-273-1		Osc. Grid
R15	47Ω	½	TRC-470-1		Osc. Cathode
R16	1000Ω	½	TRC-102-1	BTS-1000	Osc. Plate Decoupling-See Note 1
R17	5600Ω 5%	½	TRW-562-3	BTS-5600-5%	1st Video IF Grid
R18	390 10%	½	TRC-390-2		1st Video IF Cathode
R19	1000Ω	½	TRC-102-1	BTS-1000	1st Video IF Decoupling
R20	330Ω	½	TRC-331-1		AGC Network
R21	15KΩ 5%	½	TRC-153-5	BTS-15K-5%	2nd Video IF Grid
R22	390 10%	½	TRC-390-2		2nd Video IF Cathode
R23	1000Ω	½	TRC-102-1	BTS-1000	2nd Video IF Decoupling
R24	330Ω	½	TRC-331-1		AGC Network
R25	7500Ω 5%	½	TRW-752-3		3rd Video IF Coil Shunt
R26	1000 10%	½	TRC-101-2		3rd Video IF Cathode
R27	1000Ω	½	TRC-102-1	BTS-1000	3rd Video IF Decoupling
R28	560KΩ 10%	½	TRC-564-2	BTS-560K	AGC Network
R29	120KΩ 10%	½	TRC-124-2	BTS-120K	AGC Rect. Diode Load
R30	1500Ω	½	TRC-152-1	BTS-1500	Delayed AGC Network
R31	15KΩ 10%	½	TRC-124-5	BTS-120K	Voltage Divider
R32	5600Ω 5%	½	TRW-562-3	BTS-5600-5%	Video Det. Diode Load
R33	1 Meg.	½	TRC-105-1	BTS-1 Meg.	Video Amp. Grid
R34	3300Ω 10%	½	TRC-332-5	BTA-3300	Video Amp. Plate
R35	470	½	TRC-470-1		Video Amp. Cathode
R36	1 Meg.	½	TRC-105-1	BTS-1 Meg.	Video Amp. Grid
R37	3300Ω 10%	½	TRC-332-5	BTA-3300	Video Amp. Plate
R38	1000Ω 10%	½	TRC-102-2	BTS-1000	Video Amp. Plate
R39	100KΩ 10%	½	TRC-104-2	BTS-100K	Voltage Divider
R40	82Ω 10%	½	TRC-820-2		Sound IF Cathode
R41	120Ω	½	TRC-122-1	BTS-1200	Sound IF Decoupling
R42	220Ω	½	TRC-221-1		Balancing
R43	220Ω	½	TRC-221-1		Balancing
R44	5.1Ω 10%	½	TRC-5.1-A-2		Ratio Det. Filament
R45	15KΩ 5%	½	TRC-153-5	BTS-15K-5%	Ratio Det. Diode Load
R46	15KΩ 5%	½	TRC-153-5	BTS-15K-5%	Ratio Det. Diode Load
R47	47KΩ	½	TRC-473-1	BTS-47K	De-emphasis
R48	10 Meg.	½	TRC-106-1	BTS-10 Meg.	AF Amp. Grid
R49	330KΩ	½	TRC-334-1	BTS-330K	AF Amp. Plate
R50	470KΩ	½	TRC-474-1	BTS-470K	Output Grid
R51	1000Ω	2	TRC-102-5	BT-2-1000	Output Decoupling
R52	1 Meg.	½	TRC-105-1	BTS-1 Meg.	Sync. Sep. Grid
R53	15KΩ 10%	½	TRC-153-4	BTA-15K	Sync. Sep. Plate
R54	3.9 Meg. 10%	½	TRC-395-2	BTS-3.9 Meg.	Sync. Sep. Grid
R55	6800Ω	½	TRC-682-1	BTS-6800	Sync. Sep. Cathode

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
R56	22KΩ	½	TRC-223-1	BTS-22K	Integrator Network
R57	8200Ω	½	TRW-823-2	BTS-8200	Integrator Network
R58	8200Ω	½	TRW-823-2	BTS-8200	Integrator Network
R59	1 Meg. 5%	½	TRC-105-3	BTS-1 Meg. 5%	Vert. Osc. Grid
R60	1.5 Meg.	½	TRC-155-4	BTA-1.5 Meg.	Vert. Osc. Plate
R61	6.8 Meg. 10%	½	TRC-685-2	BTS-6.8 Meg.	Voltage Divider
R62	100KΩ 10%	½	TRC-104-2	BTS-100K	Voltage Divider
R63	560Ω 10%	½	TRC-561-2	BTS-560	Vert. Amp. Cathode
R64	2.2 Meg. 10%	½	TRC-225-1	BTA-2.2 Meg.	Vert. Amp. Grid
R65	1000Ω	½	TRC-102-1	BTS-1000	Vert. Amp. Decoupling
R66	3300Ω 10%	½	TRC-332-2	BTS-3300	Vert. Peaking
R67	560KΩ 5%	½	TRC-564-3	BTS-560K-5%	Horiz. AFC Grid
R68	180KΩ 10%	½	TRC-184-3	BTS-180K	Horiz. AFC Cathode
R69	100KΩ 5%	½	TRC-104-3	BTA-100K-5%	Horiz. AFC Cathode
R70	82000Ω 10%	½	TRW-823-1	BTS-8200	Horiz. AFC Filter Network
R71	150KΩ 10%	½	TRC-154-2	BTS-150K	Horiz. AFC Filter Network
R72	3.3 Meg. 5%	1	TRC-335-6	BTA-3.3 Meg. 5%	Voltage Divider
R73	30KΩ 10%	½	TRC-303-12		Voltage Divider-Temp. Compensating
R74	120KΩ 10%	½	TRC-124-2	BTS-120K	Voltage Divider
R75	270KΩ 10%	½	TRC-274-5	BTA-270K	Voltage Divider
R76	100KΩ 1%	1	TRC-104-SP		Horiz. Osc. Grid-Temp. Compensating
R77	10KΩ 10%	½	TRW-103-2	BTS-10K	Horiz. Osc. Transformer Shunt
R78	120KΩ 10%	1	TRC-124-5	BTA-120K	Horiz. Osc. Plate
R79	47Ω	½	TRC-470-1		Parasitic Supp.
R80	1 Meg.	½	TRC-105-1	BTS-1 Meg.	Horiz. Output Grid
R81	820 10%	½	TRC-820-5	BW-1-82	Horiz. Output Cathode
R82	47000Ω 10%	2	TRW-472-8	BW-2-4700	Horiz. Output Screen-Wire Wound
R83	56KΩ 10%	½	TRC-563-2	BTS-56K	Decoupling
R84	10KΩ 10%	½	TRW-103-2	BTS-10K	Filter
R85	560KΩ 10%	½	TRC-564-3	BTS-560K	Feedback
R86	3.3Ω 10%	½	TRC-33A-2		HV Rect. Filament-Wire Wound
R87	1 Meg. 10%	2	TRC-105-8		HV Filter
R88	680Ω 10%	1	TRC-681-4	BW-1-680	Focus Coil Shunt-Wire Wound
R89	680Ω 10%	1	TRC-681-4	BW-1-680	Focus Coil Shunt-Wire Wound
R90A	1125Ω 10%	10	TTRP-1		Filter-Wire Wound
B	610Ω 10%	10			Bias Network-Wire Wound
R91A	8250Ω 10%	5			Bleeder-Wire Wound
B	35Ω 10%	1	TTRP-2		Bias Network-Wire Wound
C	100Ω 10%	2			Bias Network-Wire Wound
R92	2Ω 10%	1	TRC-390-5	BW-1-39	Bias Network

Note 1. Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	REPLACEMENT DATA: SEC. 2	SEC. 3	SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	700VCT	5VAC	6.3VAC	TTR-182-D			
	② 2.1A	.250ADC	③ 3A	③ 1.2A				
				SEC. 4				
				6.3VAC				
				④ 6A				
				SEC. 5				
				6.3VAC				
				⑦ 7A				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	90Ω	1000Ω	TTR-161-D	A-8111	A-4000 ③	TSO-1 ③	Vert. Block Osc. Trans.
T3	320Ω	10.5Ω	TTR-181-D	A-8127	HVO-1	TFB-1	Hor. Output Trans.
	Tap ⑤	Tap ⑥					
	170Ω	.6Ω					
		SEC. 2					
		06					
T4	610Ω	90	TTR-153-4D	A-8112	A-3086	TSO-5 ③	Vert. Output Trans.
T5A	14Ω		TTR-159-D	DY-1	MD-3		Hor. Deflection Coil
B	65Ω						Vert. Deflection Coil
T6	245Ω		TLP-521-DA		MF-1		Focus Coil

③ Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	9.5KΩ	3.8Ω	420Ω	.5Ω	Part of SP1	A-3878	A-2931	RO-13	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	SILVERTONE PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	3.8Ω	TSF-463-D ④	46J6	46A07	④ Includes output transformer.
	CONE DIA.	V. C. DIA.				
SP2	4" x 6"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ↺)	SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.250A	50Ω	.6 Henry	TTR-106-D	C-2326 ③	C-2991 ③	TR-3300③	③ Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
L2	RF Choke	0Ω				
L3	RF Plate	0Ω				Channel 13
L4	Mixer Grid	0Ω				Channel 13
L5	Osc. Coil	0Ω		TLF-120-1D		Channel 2
L6	Osc. Coil	0Ω		TLF-120-2D		Channel 3
L7	Osc. Coil	0Ω		TLF-120-3D		Channel 4
L8	Osc. Coil	0Ω		TLF-120-4D		Channel 5
L9	Osc. Coil	0Ω		TLF-120-5D		Channel 6
L10	Osc. Coil	0Ω		TLF-120-6D		Channel 7
L11	Osc. Coil	0Ω		TLF-120-7D		Channel 8
L12	Osc. Coil	0Ω		TLF-120-8D		Channel 9
L13	Osc. Coil	0Ω		TLF-120-9D		Channel 10
L14	Osc. Coil	0Ω		TLF-120-10D		Channel 11
L15	Osc. Coil	0Ω		TLF-120-10D		Channel 12
L16	Osc. Coil	0Ω		TLF-120-10D		Channel 13
L17	RF Choke	0Ω				
L18	1st Video IF	0Ω		TLF-147-D		
L19	2nd Video IF	0Ω		TLF-517-D		
L20	RF Choke	1.3Ω		TLF-146-D		
L21	3rd Video IF	.1Ω		TLF-148-D		
L22	Sound Trap	0Ω		TTR-158		
L23	RF Choke	1.3Ω		TLF-146-D		
L24	4th Video IF	0Ω		TLF-149-D		
L25	Peaking	2.4Ω		TLF-503		36 microhenries
L26	Peaking	5Ω		TLF-502	19-1921 †	120 microhenries, wound on 22KΩ resistor
L27	Peaking	4.9Ω		TLF-519-D	19-1921	100 microhenries, red identification dot
L28	Peaking	5Ω		TLF-502	19-1921 †	120 microhenries, wound on 22KΩ resistor
L29	Peaking	2.6Ω		TLF-503		36 microhenries
L30	Sound IF	1.4Ω		TLF-114-D		
L31	Ratio Det. Trans.	4.4Ω	2.2Ω	TLF-142-D		
L32	Horiz. Osc.	125Ω		TTR-157		Tap at 33Ω
L33	Horiz. Lin.	25Ω		TLF-506		
L34	Horiz. Size	.2Ω		TLF-505-D		

† Add 22KΩ resistor in parallel.

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	RF Tuner		
M2	Fuse	TFU-2	.25A 250V Type 3AG
M3	Ion Trap	TLF-500-1D	
M4	Trimmer	TAS-501-D	Horiz. Freq. 40 to 370MMF
M5			Horiz. Drive 40 to 370MMF
M6			Horiz. Range 10 to 160MMF
M7	Trimmer	TAS-503-D	Fine tuning 2.5 to 4 MMF
M8	Switch		Power Off-On
	Knob	TKN-118-D	Built-in antenna
	Knob	TKN-108	Channel selector
	Knob	TKN-100	Fine tuning
	Knob	TKN-100	Vert. hold
	Knob	TKN-100	Brightness
	Knob	TKN-101	Horiz. hold
	Knob	TKN-101	Contrast
	Knob	TKN-100	Off-On outside knob
	Knob	TKN-103	Off-On inside knob
	Knob	TKN-100	Volume outside knob
	Knob	TKN-103	Volume inside knob

PHOTOFACT* Folder

SPARTON MODELS
5010, 5011, 5014, 5015, 5056,
5057, 5071, 5072 (CH. 19TS10, A)

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MODEL 5056

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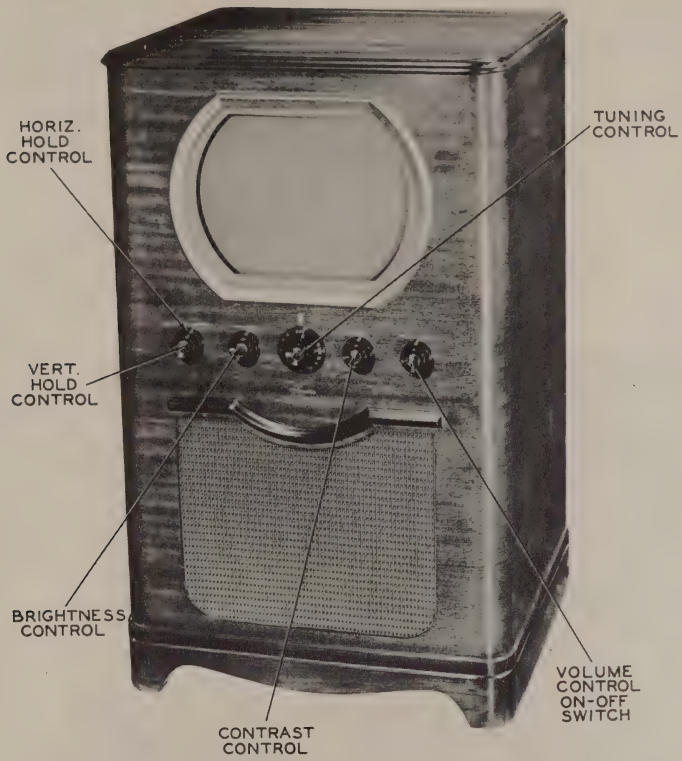

SPARTON MODELS 5010, 5011, 5014, 5015, 5056, 5057, 5071, 5072

SPARTON MODEL 5056

TRADE NAME	Sparton, Models 5010, 5011, 5014, 5015, 5056, 5057, 5071, 5072, (Ch. 19TS10, 19TS10A)
MANUFACTURER	Sparks-Withington Co., Jackson, Michigan
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.5 Amp. at 117 Volts AC
TUNING RANGE—	Channels 2 thru 13

INDEX

Alignment Instructions 6
Block Diagram 10
Disassembly Instructions 13
Horiz. Sweep Circuit Adjustment 13
Parts List and Description 14, 15, 16
Photographs
Cabinet-Rear View 13
Capacitor Identification 11, 18
Photographs (continued)
Chassis-Top View 3, 10
RF Tuner 7
Resistor Identification 12, 17
Trans., Inductor and Alignment Identification 4, 9
Schematic 2
Tube Placement Chart 5
Voltage and Resistance Measurements 8

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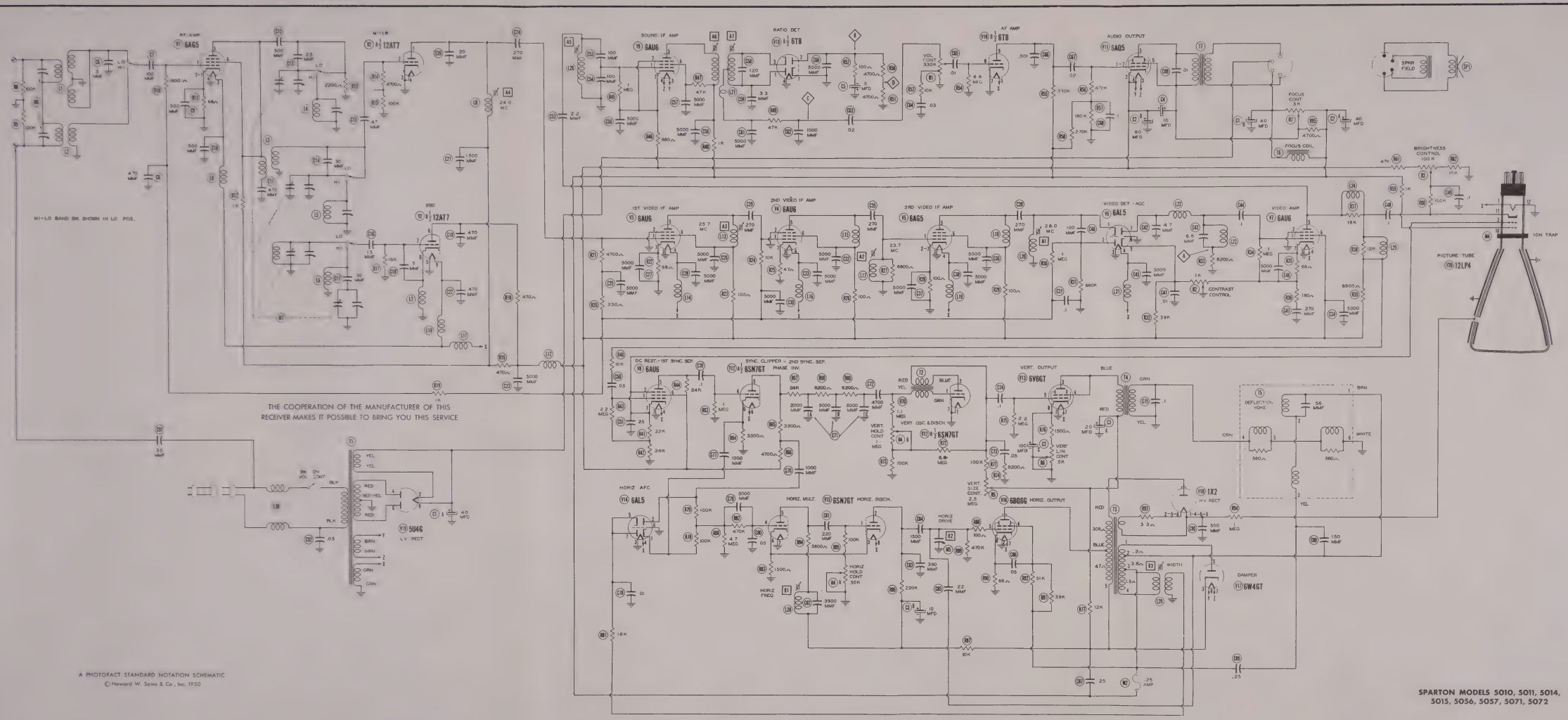

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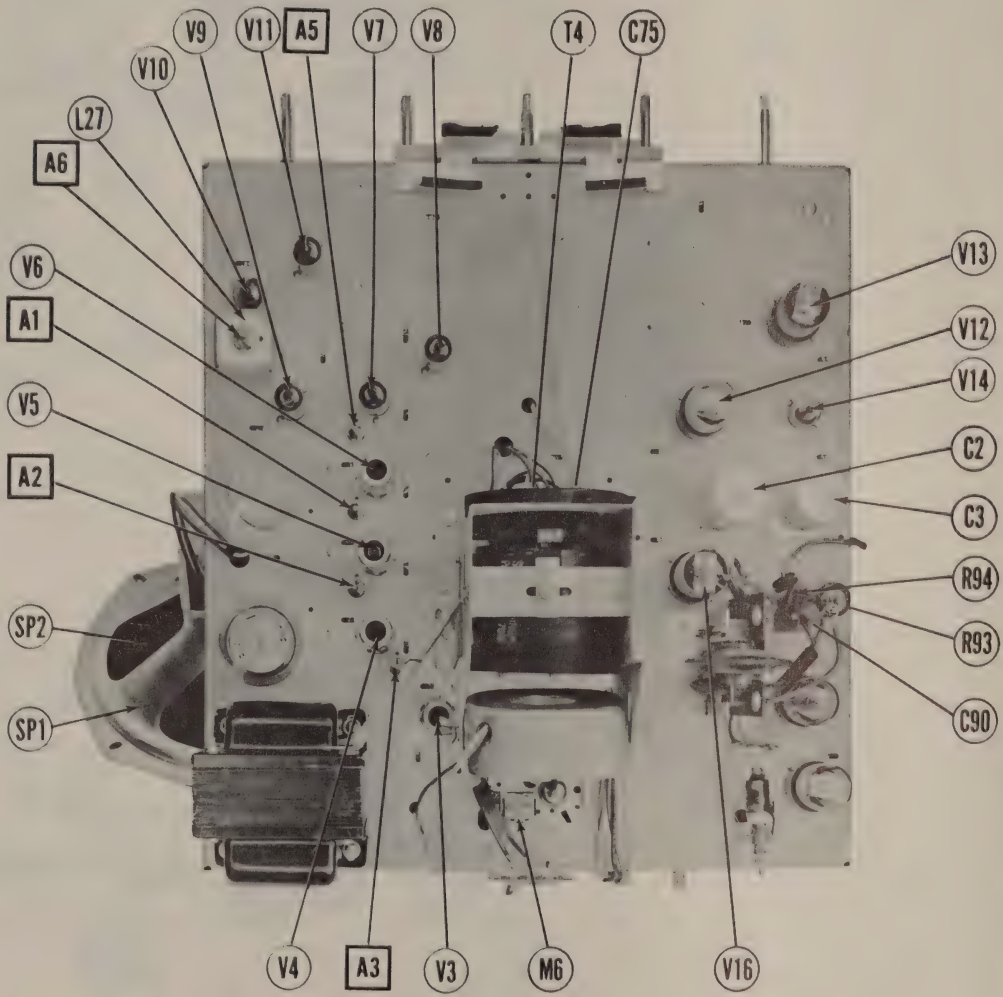
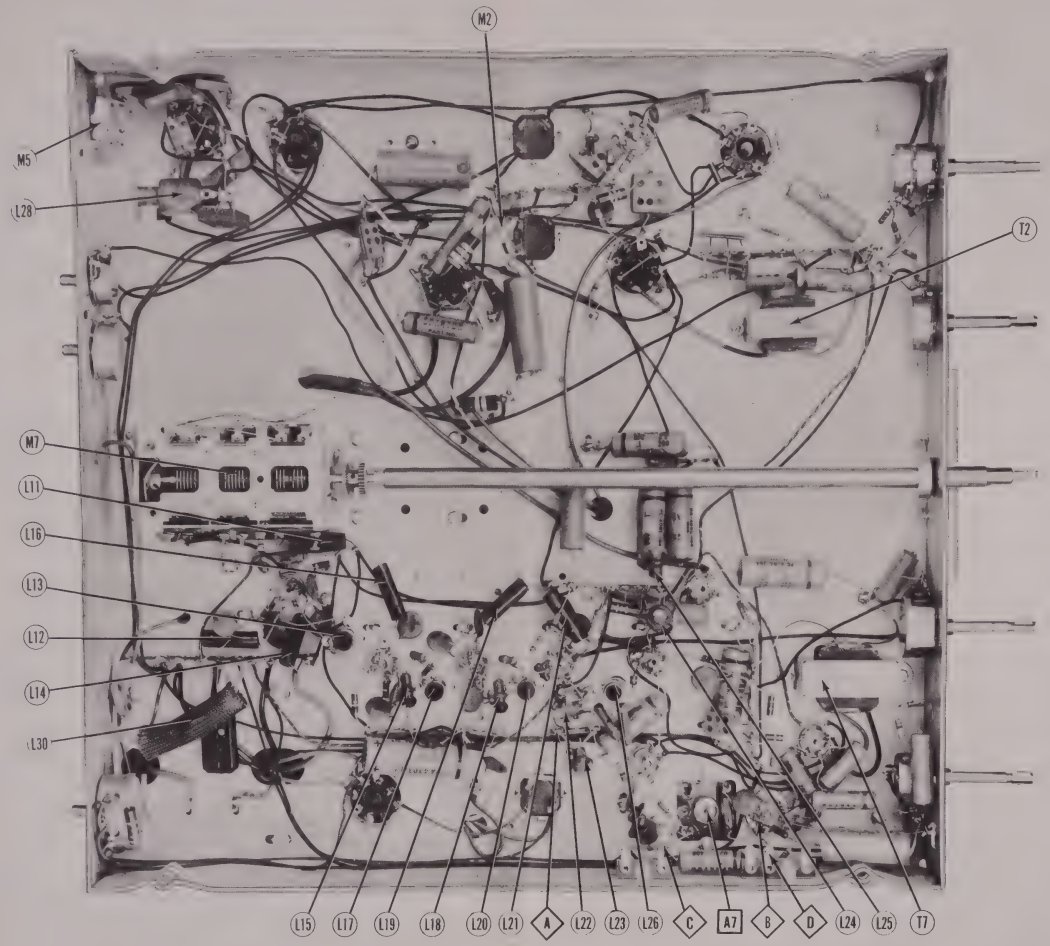
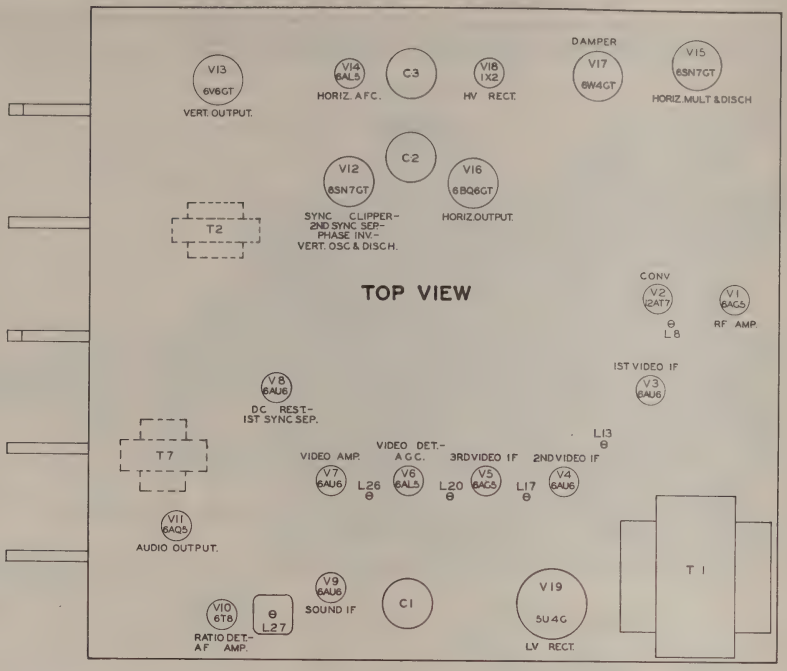
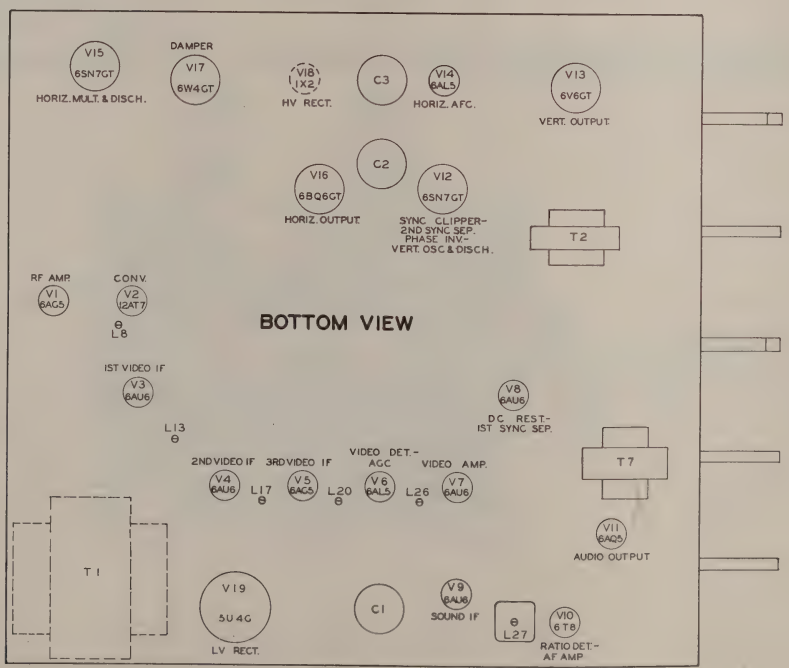


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal output tube (V16) from its socket. Do not remove the horizontal oscillator tube (V15).

VIDEO IF ALIGNMENT

Turn the channel selector to channel 2.
Connect the negative lead of a 3 volt battery to the junction of R19 and R20, connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over converter tube (V2). Low side to chassis.	26MC (Unmod.)	2	DC Probe to Point (A). Common to chassis.	A1	Adjust for maximum deflection.
2.	Direct	"	23.7MC	"	"	A2	"
3.	Direct	"	25.7MC	"	"	A3	"
4.	Direct	"	24MC	"	"	A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to ungrounded tube shield floating over converter tube (V2). Low side to chassis.	24MC (10MC SWP)	23.25MC 24MC 25.5MC 26.25MC	2	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V7). Low side to chassis.	4.5MC (Unmod.)	2	DC Probe to Point (B). Common to chassis.	A5, A6	Adjust for maximum deflection.
7.	.01MFD	"	"	"	DC Probe to Point (C). Common to Point (D).	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V7). Low side to chassis.	4.5MC (450KC Sweep)	4.5MC	2	Vert. Amp. to Point (B). Low side to chassis.	A5, A6	Disconnect stabilizer capacitor C5. Adjust for maximum amplitude and symmetry as per figure 2.
7.	.01MFD	"	"	"	"	Vert. Amp. to Point (C). Low side to chassis.	A7	Reconnect capacitor C5. Adjust A7 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines.

THE ADJUSTMENTS ON THE TUNER PORTION OF THIS RECEIVER HAVE BEEN PROPERLY ALIGNED AT THE FACTORY AND ARE VERY STABLE. THEY SHOULD NOT REQUIRE ALIGNMENT IN THIS FIELD.

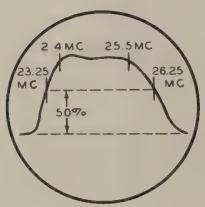


FIG. 1

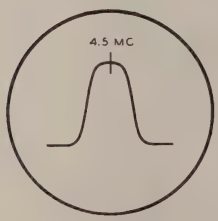


FIG. 2

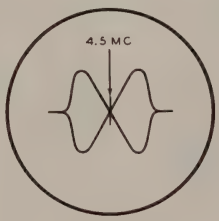
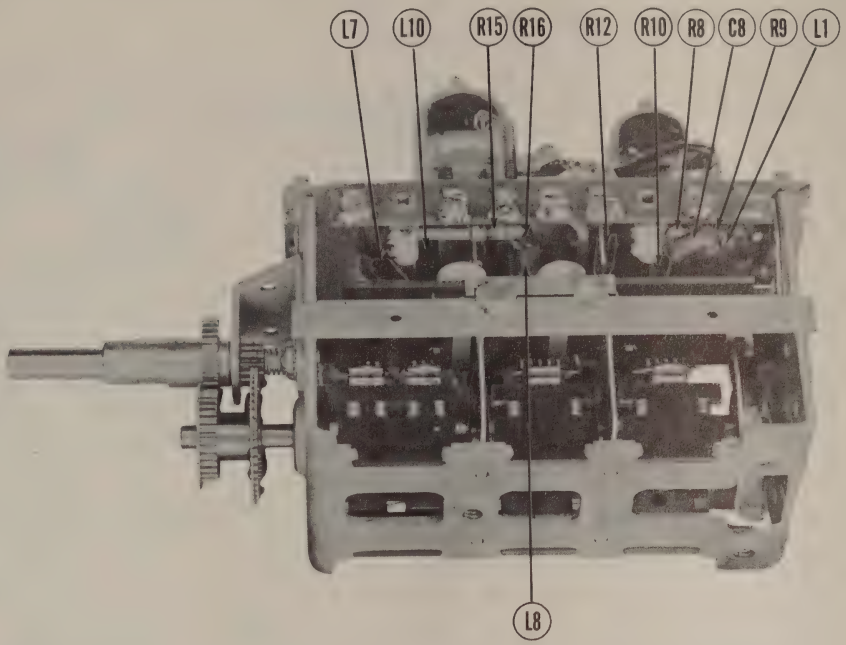
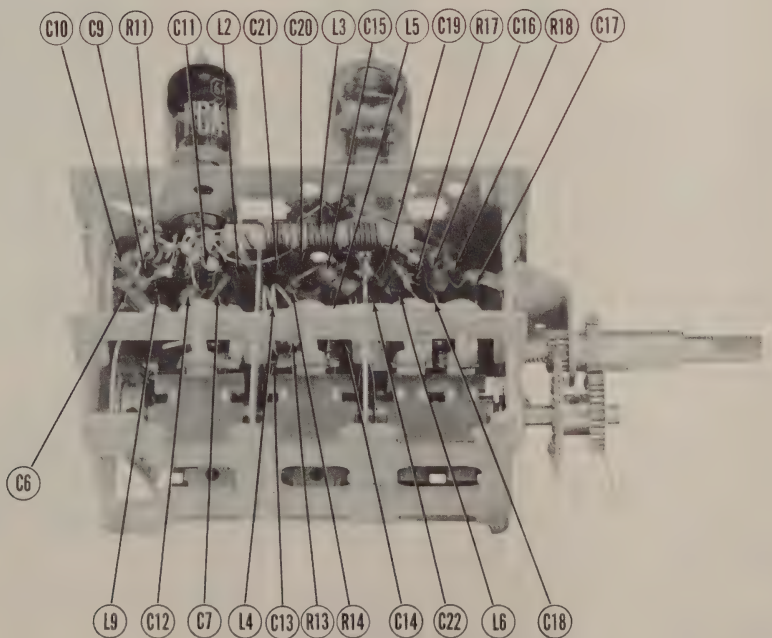


FIG. 3



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.3VDC	.6VDC	6.3VAC	0V.	140VDC	140 VDC	.6VDC		
V 2	12AT7	135VDC	-.7VDC	0V.	0V.	0V.	135VDC	§-2.7VDC	0V.	6.3VAC
V 3	6AU6	-.3VDC	0V.	0V.	6.3VAC	145VDC	145VDC	.5VDC		
V 4	6AU6	-.2VDC	0V.	0V.	6.3VAC	145VDC	145VDC	.3VDC		
V 5	6AG5	0V.	1.2VDC	0V.	6.3VAC	145VDC	145VDC	1.2VDC		
V 6	6AL5	0V.	-.9VDC	0V.	6.3VAC	0V.	0V.	-.6VDC		
V 7	6AU6	.6VDC	0V.	0V.	6.3VAC	90VDC	145VDC	14VDC		
V 8	6AU6	.2VDC	10VDC	0V.	6.3VAC	140VDC	145VDC	10VDC		
V 9	6AU6	†.6VDC	†6VDC	†0V.	†6.3VAC	†205VDC	†100VDC	†6VDC		
V 10	6T8	-.1VDC	-.3VDC	-.1VDC	0V.	6.3VAC	0V.	0V.	-.4VDC	95VDC
V 11	6AQ5	†-4VDC	†0V.	†6.3VAC	†0V.	†175VDC	†195VDC	†-4VDC		
V 12	6SN7GT	-80VDC -12VDC	250VDC 75VDC	0V.	0V.	130VDC	5.8VDC	0V.	6.3VAC	
V 13	6V6GT	0V.	0V.	385VDC	385VDC	.1VDC	32VDC .2VDC	6.3VAC	30VDC 45VDC	
V 14	6AL5	3.6VDC	-3.3VDC	0V.	6.3VAC	.2VDC	0V.	.2VDC		
V 15	6SN7GT	-3.4VDC	145VDC	13VDC	.2VDC	330VDC	13VDC	0V.	6.3VAC	
V 16	6BQ6GT	0V.	0V.	0V.	130VDC	-14VDC	0V.	6.3VAC	5VDC	TOP CAP *
V 17	6W4GT	0V.	0V.	470VDC	-12VDC	350VDC	380VDC	†6.3VAC	†0V.	
V 18	1X2	* DO NOT MEASURE.								
V 19	5U4G	0V.	430VDC	0V.	380VAC	345VDC	380VAC	0V.	430VDC	
V 20	12LP4	6.3VAC	9.9VDC	PIN 10 360VDC	PIN 11 105VDC	PIN 12 0V.				

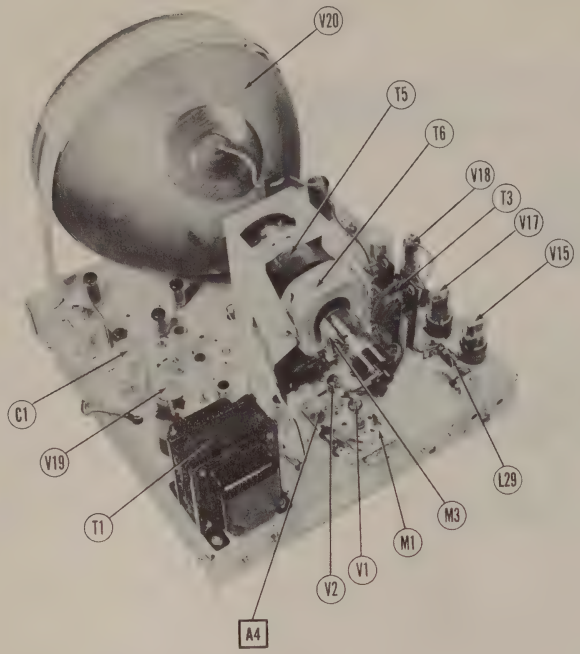
§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.
† MEASURED FROM PIN 2 OF V11.

RESISTANCE READINGS

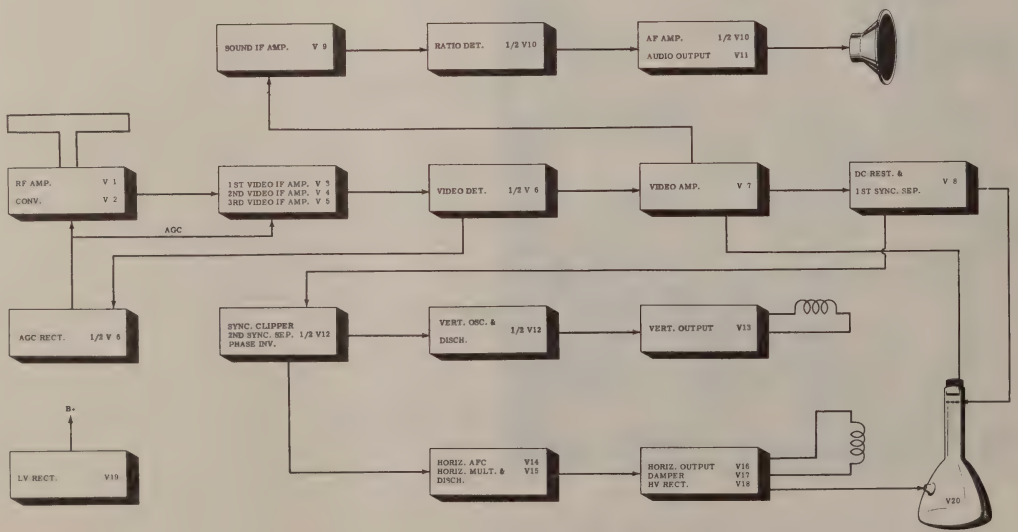
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	1.6 Meg.	68Ω	.1Ω	0Ω	†1.4KΩ	†1.4KΩ	68Ω		
V 2	12AT7	†470Ω	105KΩ	0Ω	0Ω	0Ω	†470Ω	18KΩ	.2Ω	.1Ω
V 3	6AU6	1.6 Meg.	0Ω	0Ω	.1Ω	†100Ω	†100Ω	68Ω		
V 4	6AU6	1.7 Meg.	0Ω	0Ω	.1Ω	†100Ω	†100Ω	47Ω		
V 5	6AG5	.1Ω	100Ω	0Ω	.1Ω	†100Ω	†100Ω	100Ω		
V 6	6AL5	.1Ω	680KΩ	0Ω	.1Ω	0Ω	0Ω	8.2KΩ		
V 7	6AU6	1 Meg.	0Ω	0Ω	.1Ω	†6.8KΩ	†0Ω	1000Ω		
V 8	6AU6	2.2 Meg.	46KΩ	0Ω	.1Ω	†24KΩ	†0Ω	46KΩ		
V 9	6AU6	†1 Meg.	†680Ω	†0Ω	†.1Ω	▲1.5KΩ	▲48KΩ	†680Ω		
V 10	6T8	Inf.	9.4KΩ	Inf.	0Ω	.1Ω	Inf.	0Ω	6.8 Meg.	▲330KΩ
V 11	6AQ5	650KΩ	†0Ω	†.1Ω	†0Ω	▲850Ω ▲1.3KΩ	▲440Ω ▲900Ω	650KΩ		
V 12	6SN7GT	1.2 Meg. 2.2 Meg.	■110KΩ ■1.8 Meg.	0Ω	1 Meg.	†8.6KΩ	3.3KΩ	0Ω	.1Ω	
V 13	6V6GT	Inf.	0Ω	■12KΩ	■12KΩ	2.2 Meg.	9Ω 4000Ω	.1Ω	6.5KΩ 1.5KΩ	
V 14	6AL5	4.8 Meg.	4.8 Meg.	0Ω	.1Ω	18KΩ	0Ω	18KΩ		
V 15	6SN7GT	150KΩ	■230KΩ	1.5KΩ	5 Meg.	■15KΩ	1.5KΩ	0Ω	.1Ω	
V 16	6BQ6GT	Inf.	0Ω	Inf.	▲25KΩ	470KΩ	Inf.	.1Ω	68Ω	TOP CAP ■50Ω
V 17	6W4GT	Inf.	Inf.	■0Ω	50KΩ	▲400Ω	■10KΩ	†.1Ω	†0Ω	
V 18	1X2	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ■350Ω
V 19	5U4G	Inf.	150KΩ	Inf.	65Ω	130KΩ	70Ω	Inf.	150KΩ	
V 20	12LP4	.1Ω	46KΩ	PIN 10 ▲1.5KΩ	PIN 11 140KΩ	PIN 12 0Ω				

† MEASURED FROM PIN 2 OF V11.
▲ MEASURED FROM PIN 8 OF V19.
■ MEASURED FROM PIN 3 OF V17.

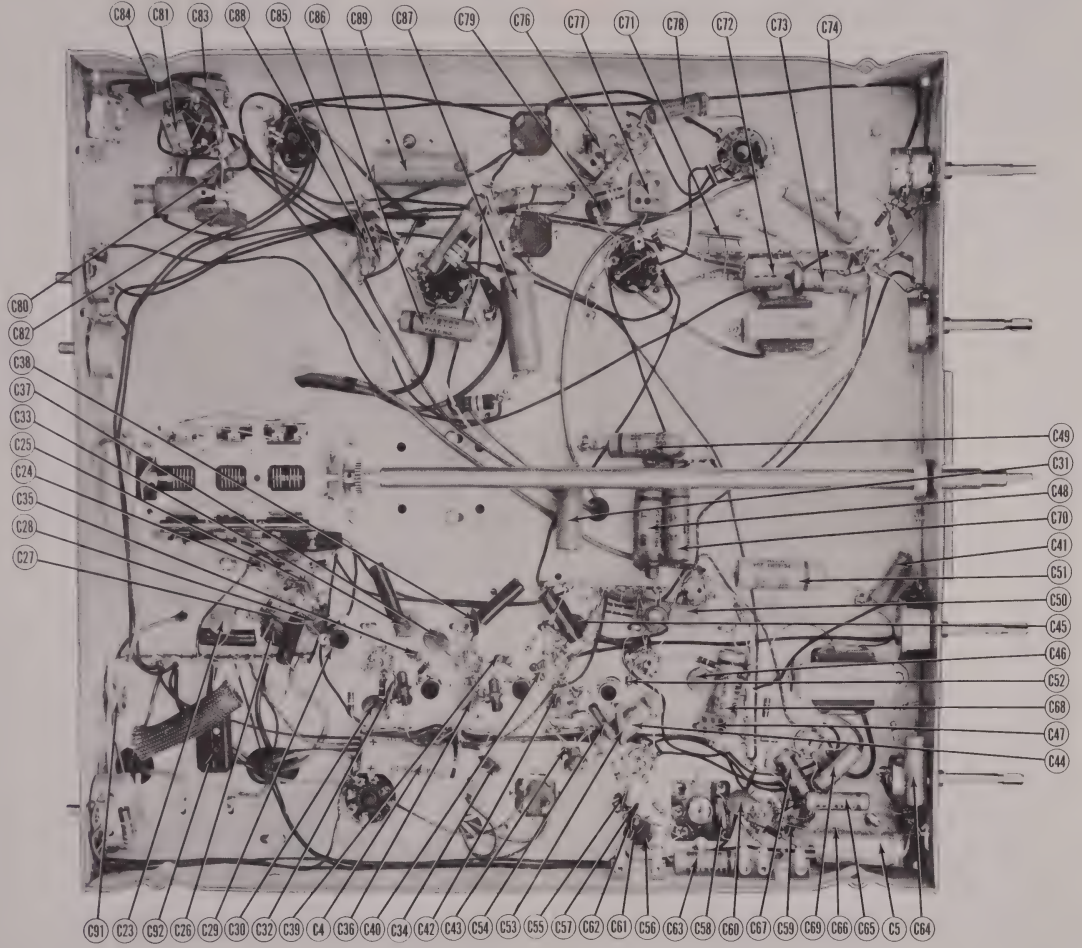
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



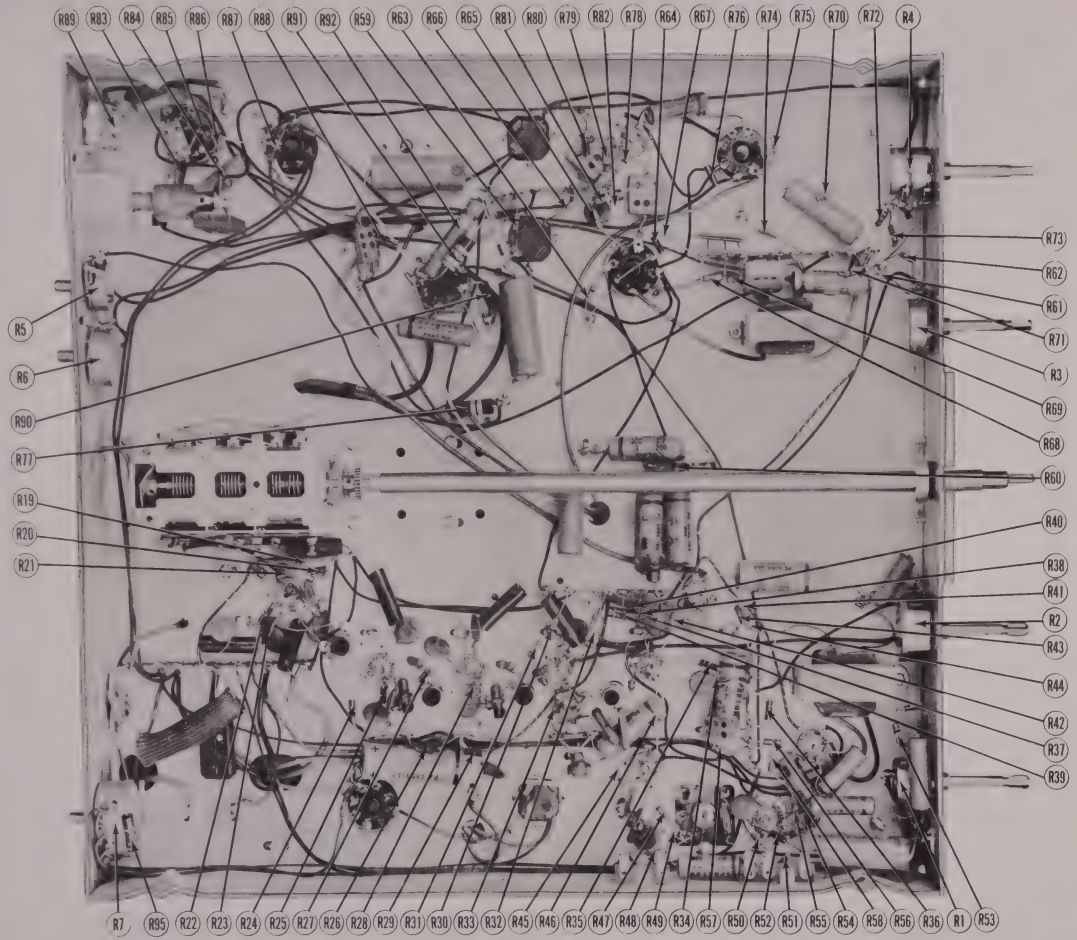
CHASSIS-TOP VIEW


SOUND IF AMP. V 9
RATIO DET. 1/2 V10
AF AMP. 1/2 V10
AUDIO OUTPUT V11
RF AMP. V 1
CONV. V 2
1ST VIDEO IF AMP. V 3
2ND VIDEO IF AMP. V 4
3RD VIDEO IF AMP. V 5
VIDEO DET. 1/2 V 6
VIDEO AMP. V 7
DC REST. & 1ST SYNC. SEP. V 8
AGC
AGC RECT. 1/2 V 6
SYNC. CLIPPER 2ND SYNC. SEP. 1/2 V12 PHASE INV.
VERT. OSC. & DISCH. 1/2 V12
VERT. OUTPUT V13
B+
LV RECT. V19
HORIZ. AFC V14
HORIZ. MULT. & DISCH. V15
HORIZ. OUTPUT V16
DAMPER V17
HV RECT. V18
V20

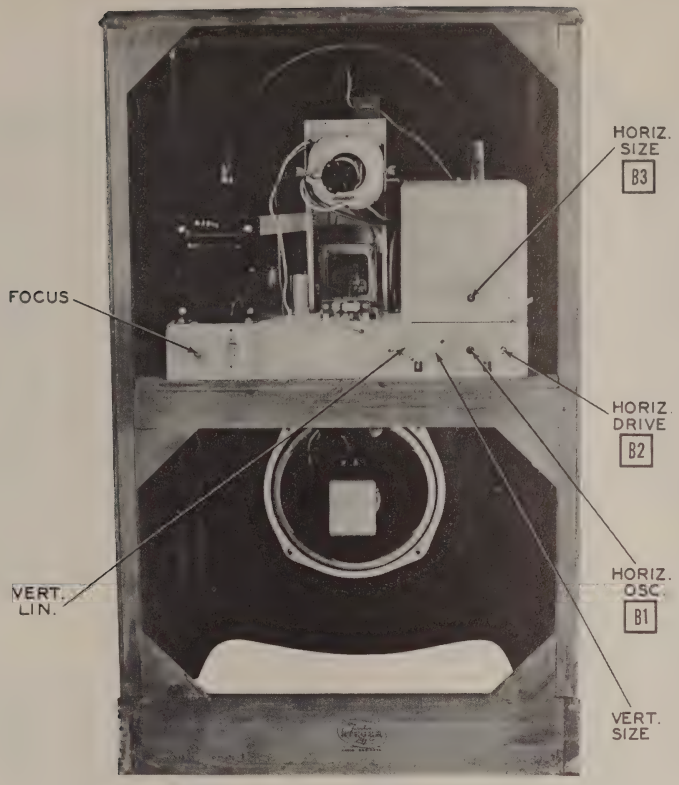
BLOCK DIAGRAM



CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CABINET–REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B2) for best compromise between brightness and horizontal linearity.

Adjust the width slug (B3) until the picture fills the mask horizontally.

DISASSEMBLY INSTRUCTIONS

1. Remove seven push-on type control knobs from front of set.
2. Remove five phillips head screws and one 1/4" hex head screw holding rear cover. Remove cover.
3. Disconnect speaker plug and pull lead up through hole in cabinet.
4. Remove four 3/8" hex head bolts holding chassis at bottom. Remove chassis.
5. Remove four 11/32" hex nuts holding speaker. Remove speaker.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SPARTON PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AG5 or 6CB6	6AG5 or 6CB6	7BD or 3GM	
V2	Converter	12AT7	12AT7	9A	
V3	1st Video IF	6AU6	6AU6	7BK	
V4	2nd Video IF	6AU6	6AU6	7BK	
V5	3rd Video IF	6AG5	6AG5	7BD	
V6	Video Det. -AGC	6AL5	6AL5	6BT	
V7	Video Amp	6AU6	6AU6	7BK	
V8	DC Rest. -1st Sync. Sep.	6AU6	6AU6	7BK	
V9	Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Det. -AF Amp.	6T8	6T8	9E	
V11	Audio Output	6AQ5	6AQ5	7BZ	
V12	Sync. Clipper-2nd Sync. Sep. -Phase Inv.-Vert. Osc.- Vert. Disch.	6SN7GT	6SN7GT	6BD	
V13	Vert. Output	6V6GT	6V6GT	7AC	
V14	Hor. AFC	6AL5	6AL5	6BT	
V15	Hor. Mult.-Hor. Disch	6SN7GT	6SN7GT	6BD	
V16	Hor. Output	6BQ6GT	6BQ6GT	6AM	
V17	Damper	6W4GT	6W4GT	6CG	
V18	HV Rect	1X2	1X2	7CB	
V19	LV Rect	5U4G	5U4G	5T	
V20A	Picture Tube	12LP4	12LP4	12D	Used in chassis 19TS10A
B	Picture Tube	10BP4	19BP4	12D	Used in chassis 19TS10

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	475	PA4307-13	AF88X		UP4450		TVL-20	▲ Filter
B	40	475							▲ Filter
C3A	40	475	PA4307-15	AF8X16E				TVL-19	▲ Filter
B	80	200						TVA-121	▲ Decoupling
C3A	30	450	PA4307-17	AFH42J20B		UP11145		TVL-07	▲ Decoupling
B	10	150				BR8501		TVA-49	▲ Decoupling
C	100	50							▲ Vert. Output Cath. Byp Filter
C4	10	350	PA4303-13	PR5450/10		BR1235A		TVA-49	Filter
C5	5	50	PA4308-2	PR8150/4		BR550		TVA-13	Stabilizing Cap.
C6	3			S13DN750			NPOK-3		Fixed Trimmer
C7	100			GP100M	D6-101		GP2K-100		RF Coupling
C8	470			GP470M	D6-471		GP2K-470		AGC Filter
C9	500			GP500M	D6-501		GP2K-500		RF Cathode Bypass
C10	500			GP500M	D6-501		GP2K-500		RF Filament Bypass
C11	470			GP470M	D6-471		GP2K-470		RF Decoupling
C12	500			GP500M	D6-501		GP2K-500		RF Coupling
C13	25			S125JNPO	D2-24		NPOL-25		Fixed Padder
C14	30			S130JNT50	DN-30		N750K-30		Fixed Padder
C15	47			S147JNT50	DN-47		N750L-47		RF Coupling
C16	15			S15JN750	DN-15		N750K-15		Osc. Grid Cap.
C17	30			S130JN750	DN-30		N750K-30		Fixed Padder
C18	5			S15DN750			N750K-5		Osc. Feedback
C19	470			GP470M	D6-471		GP2K-470		Osc. Plate Bypass
C20	30			S13DJNPO	D2-20		NPOK-20		Fixed Trimmer
C21	1500			GP1500M	D6-152		GP2L-0015		RF Bypass
C22	470			GP470M	D6-471		GP2K-470		Conv. Filament Bypass
C23	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	RF Bypass
C24	270		HK36M-271	GP270M	D6-271	5WS725	GP2K-270	1FM-325	IF Coupling
C25	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	AGC Filter
C26	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	1st V. IF Decoupling
C27	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	1st V. IF Cath. Byp.
C28	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	1st V. IF Fil. Byp.
C29	270		HK36M-271	GP270M	D6-271	5WS725	GP2K-270	1FM-325	IF Coupling
C30	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	AGC Filter
C31	.01	200	PC40GL-103	P288-1		PTE4P1	81L-01	TM-1	AGC Filter
C32	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	2nd V. IF Decoupling
C33	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	2nd V. IF Fil. Bypass
C34	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	RF Bypass
C35	270		HK36M-271	GP270M	D6-271	5WS725	GP2K-270	1FM-325	IF Coupling
C36	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	3rd V. IF Decoupling
C37	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	3rd V. IF Cath. Byp.
C38	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	3rd V. IF Fil. Byp.
C39	270		HK36M-271	GP270M	D6-271	5WS725	GP2K-270	1FM-325	IF Coupling
C40	100		PA4304-3	GP100M	D6-101	5WS71	GP2K-100	1FM-31	IF Coupling
C41	.01	[illegible]	PC40GL-103	P488-01	D6-103	PTE4S1	81L-01	TM-11	DAGC Decoupling
C42	4.7		PA4328-11	CN4.7DNPO	D2-4.7	5WS9V5	NPOK-4.7	MS-55	V. Diode Filter
C43	6.8		PA4328-13	CN6.8DNPO	D2-6.8		NPOK-6.8		Fixed Trimmer
C44	.1	200	PC40EBK-104	P288-1		PTE4P1		TM-1	Video Coupling
C45	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	V. Det.-AGC Fil. Byp.
C46	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	V. Amp. Cath. Byp.
C47	270	500	MC60F-271	146B-00025	D6-271	5WS725	GP2K-270	1FM-325	V. Amp. Cath. Byp.
C48	.1	400	PC40EBL-104	P488-01		PTE4P1		TM-1	Video Coupling
C49	.1	200	PC40EBK-104	P288-1		PTE4P1		TM-1	Pic. Tube Cath. Dec.
C50	.05	400	PC40EBL-503	P488-05		PTE4S5		TM-15	Sync. Coupling
C51	.25	200	PC40EBK-254	P488-25		GT2P25		TC-2	Sync. Sep. -DC Rest. Cath. Byp.
C52	2.2		PA4326-1		D2-2.2				S. IF Cup.
C53	100		PA4322-3	S100KNPO	D2-100	5R5T1	NPOM-100	MS-31	Fixed Padder
C54	100		PA4322-3	S100KNPO	D2-100	5R5T1	NPOM-100	MS-31	Fixed Trimmer
C55	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	S. IF Decoup.
C56	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	S. IF Cath. Byp.
C57	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	S. IF Screen Byp.
C58	120	500	MC62F-121		D2-120		NPOM-120		Fixed Trimmer
C59	3.3		PA4328-4	CN3.3DNPO	D2-3.3		NPOK-3.3		Balancing
C60	5000		PA4304-1	BPD-5	D6-502	1D5D5	81L-005	29C1	RF Bypass

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C61	5000		PA4334-1	BPD-5	D6-502	1D5D5	81L-005	29C1	Diode Load Cap.
C62	1000		HK36M-102	GP1000M	D6-102	1W5D1	GP2L-091	1FM-31	De-emphasis
C63	.02	400	PC40GL-203	P488-02		PTE4S2		TM-13	Audio Coupling
C64	.03	200	PC40GK-303	P488-03		PTE4S3		TM-13	Tone Comp.
C65	.01	400	PC40GL-103	P488-01	D6-103	PTE4S1	81L-01	TM-11	Audio Coupling
C66	.001	600	PC40GM-102	P888-01	D6-102	PTE5D1	GP2L-001	TM-21	AF Amp. Plate Bypass
C67	.02	400	PC40HL-203	P488-02		PTE4S2		TM-12	Audio Coupling
C68	.1	400	PC40GL-104	P488-1		PTE4P1		TM-1	Bias Filter
C69	.01	400	PC40GL-103	P488-01	D6-103	PTE4S1	81L-01	TM-11	Output Plate Bypass
C70	.1	400	PC40GL-104	P488-1		PTE4P1		TM-1	Sync. Coupling
C71A	2000		PA4339-4	GP2000M	D6-202	PTE6D2	GP2M-002	TM-22	Integrator Net.
B	5000			GP5000M	D6-502	PTE6D5	81L-005	TM-25	Integrator Net.
C	5000			GP5000M	D6-502	PTE6D5	81L-005	TM-25	Integrator Net.
C72	4700	500	MC61F-503	1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid Cap.
C73	.05	400	PC40FL-503	P488-05		PTE4S5		TM-15	Vert. Discharge
C74	.1	400	PC40GL-104	P488-1		PTE4P1		TM-1	Vert. Sweep Coupling
C75	1	200		P388-1		PTE4P1		TM-1	Fixed Trimmer
C76	1000	500	MC61E-102	1467-001	D6-102	1W5D1	GP2L-001	1FM-21	Hor. Sync. Coupling
C77	1000	500	MC61E-102	1467-001	D6-102	1W5D1	GP2L-001	1FM-21	Hor. Sync. Coupling
C78	.01	400	PC40FL-103	P488-01	D6-103	PTE4S1	81L-01	TM-11	Integrator Net.
C79	5000	500	PA4334-1	BPD-5	D6-502	1D5D5	81L-005	29C1	AFC Filter
C80	.05	200	PC40GK-503	P288-05		PTE4S5		TM-15	AFC Filter
C81	220	500	MC60E-221	1466-00025	D6-221	5RS71S	GP2K-220	MS-325	Hor. AFC Feedback
C82	3900	500	MC60E-392	1466-004		1DR5D4		MS-34	Fixed Trimmer
C83	390	500	MC60E-391	1469-0004	D6-391	5RS74	GP2K-390	MS-34	Hor. Discharge
C84	1500	500	MC61F-152	1467-0015	D6-152	1W5D15	GP2L-005	1FM-315	Hor. Sweep Coupling
C85	22	1500	PA4340-8						Hor. Feedback
C86	.05	400	PC40EL-503	P488-05		PTE4S5		TM-15	Hor. Output Screen Byp.
C87	.25	400		P488-25		GT4P25		TC-2	Damper Filter
C88	150	1500	PA4340-9						Fixed Trimmer *
C89	.25	400		P488-25		GT4P25		TC-2	Hor. Sweep Coupling
C90	500	10000	PA4342				TV2-50L		HV Filter
C91	30	500	MC60G-300	1468-00004	D6-330	5WS93	GP1K-30	MS-43	Ant. Coupling
C92	.05	400	PC40GL-473	P488-05		PTE4S5		TM-15	Line Filter

* 19TS10 chassis uses 68MMF 1200 volts in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	330KΩ	½	PA4436	Q1B-132X	AT-70		Volume control, tapped at 80KΩ
B	Shaft		Not Req.	Not Req.	KSS-3		Attach to R1A per instructions
C	Switch		Not Req.	T6-1	SW-A		Attach to R1A per instructions
R2	1000Ω	2	PA4437-1				Contrast control-Wire Wound
R3A	130KΩ	½	PA4436-1	Q1I-128	AM-49-S	AN-40	Brightness control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R3A per instructions
R4A	50KΩ	½	PA4439-1	Concentrikit Bl1-123 * Bl1-137 * E-202 *		SBB-623	Horiz. hold control-front
B	1 Meg.						Vert. hold control-rear
C	Shaft End						Attach per instr. in "Concentrikit".
R5A	2.5 Meg.	½	PA4431	Q1I-239	AM-84-S	AN-83	Vert. size control
B	Shaft		Not Req.	Not Req.	FKS 1/4"	AK-1	Attach to R5A per instructions
R6A	5000Ω	½	PA4441	Q1I-114	AM-19-S	AN-10	Vert. linearity control
B	Shaft		Not Req.	Not Req.	FKS 1/4"	AK-1	Attach to R6A per instructions
R7	3000Ω	4	PA4440		10-3000	V-133	Focus control-Wire Wound

* Additonal parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R8	100KΩ	½		BTS-100K	Ant. Loading
R9	100KΩ	½		BTS-100K	Ant. Loading
R10	1800Ω	½		BTS-1800	RF Grid
R11	68Ω 20%	½			RF Cathode
R12	3000Ω 20%	½		BTS-1000	RF Decoupling
R13	2200Ω	½		BTS-2200	Series RF Coil
R14	47000Ω 20%	½		BTS-4700	Conv. Grid
R15	100KΩ 20%	½		BTS-100K	Conv. Grid
R16	470Ω	½		BTS-470	Conv. Plate Decoupling
R17	18KΩ 5%	½		BTS-18K-5%	Osc. Grid
R18	4700 20%	½		BTS-470	Osc. Plate
R19	1000Ω 20%	½		BTS-1000	AGC Network
R20	330Ω 20%	½			AGC Network
R21	47000Ω 5%	½		BTS-4700-5%	1st Video IF Grid
R22	68Ω	½			1st Video IF Cathode
R23	1000 20%	½			1st Video IF Decoupling
R24	10KΩ 5%	½		BTS-4700	2nd Video IF Grid
R25	47Ω	½			2nd Video IF Cathode
R26	1000 20%	½			2nd Video IF Decoupling
R27	68000Ω 5%	½		BTS-6800-5%	3rd Video IF Coil Shunt
R28	1000	½			3rd Video IF Cathode
R29	1000Ω 20%	½			3rd Video IF Decoupling
R30	1 Meg. 20%	½		BTS-1 Meg.	AGC Network
R31	680KΩ 20%	½		BTS-680K	AGC Rect. Diode Load
R32	39KΩ	½		BTA-39K	Voltage Divider
R33	8200Ω 5%	½		BTS-8200-5%	Video Det. Diode Load
R34	1 Meg.	½		BTS-1 Meg.	Video Amp. Grid
R35	[illegible]				Video Amp. Cathode
R36	18KΩ 5%	½			Video Amp. Cathode
R37	18KΩ 5%	½		BTS-18K-5%	Peaking Coil Shunt
R38	12KΩ 5%	½		BTS-12K-5%	Peaking Coil Shunt
R39	68000Ω 5%	½		BTA-6800-5%	Video Amp. Plate
R40	10KΩ	½		BTS-10K	Isolation

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	IDENTIFICATION CODES
R41	22KΩ	½		BTS-22K	Picture Tube Grid
R42	24KΩ	½		BTS-22K	Voltage Divider
R43	2.2 Meg. 20%	½		BTS-2.2 Meg.	1st Sync. Sep. Grid
R44	24KΩ	½		BTS-22K	1st Sync. Sep. Plate
R45	1 Meg. 5%	½		BTS-1 Meg. 5%	Sound IF Grid
R46	680Ω 20%	½		BTS-680	Sound IF Decoupling
R47	47KΩ	½		BTS-47K	Sound IF Screen
R48	1000Ω 20%	½		BTS-1000	Sound IF Decoupling
R49	47KΩ	½		BTS-47K	De-emphasis
R50	4700Ω 5%	½		BTS-4700-5%	Ratio Det. Diode Load
R51	4700Ω 5%	½		BTS-4700-5%	Ratio Det. Diode Load
R52	100Ω 5%	½			Equalizing
R53	10KΩ	½		BTS-10K	Tone Compensation
R54	6.8 Meg. 20%	½		BTS-6.8 Meg.	AF Amp. Grid
R55	330KΩ 20%	½		BTS-330K	AF Amp. Plate
R56	470KΩ 20%	½		BTS-470K	Output Grid
R57	180KΩ 5%	½		BTS-180K-5%	Voltage Divider
R58	270KΩ 5%	½		BTS-270K-5%	Voltage Divider
R59	1000Ω 20%	½		BTS-1000	Acc. Anode Decoupling
R60	100KΩ	½		BTS-100K	Voltage Divider
R61	47KΩ	½		BTS-47K	Voltage Divider
R62	10KΩ	½		BTS-10K	Voltage Divider
R63	1 Meg. 20%	½		BTS-1 Meg.	Sync. Phase Inv. Grid
R64	3300Ω 5%	1		BTS-3300-5%	Sync. Phase Inv. Cathode
R65	3900Ω 5%	1		BTS-3900-5%	Sync. Phase Inv. Plate
R66	4700Ω 5%	1		BTS-4700-5%	Sync. Phase Inv. Plate
R67	24KΩ	½		BTS-22K	Integrator Network
R68	8200Ω	½		BTS-8200	Integrator Network
R69	8200Ω	½		BTS-8200	Integrator Network
R70	1.1 Meg. 5%	½			Vert. Osc. Grid
R71	100KΩ	½		BTS-100K	Vert. Osc. Plate
R72	6.8 Meg.	½		BTS-6.8 Meg.	Voltage Divider
R73	100KΩ	½		BTS-100K	Voltage Divider
R74	8200Ω 5%	½		BTS-8200-5%	Vert. Peaking
R75	2.2 Meg. 20%	½		BTS-2.2 Meg.	Vert. Output Grid
R76	1500Ω 20%	½		BTS-1500	Vert. Output Cathode
R77	12KΩ	2		BT-2-12K	Decoupling
R78	100KΩ	½		BTS-100K	Horiz. AFC Disc. Load
R79	100KΩ	½		BTS-100K	Horiz. AFC Disc. Load
R80	4.7 Meg. 10%	½		BTS-4.7 Meg.	Horiz. AFC Disc. Load
R81	18KΩ	½		BTA-18K	Feedback Network
R82	470KΩ	½		BTS-470K	Horiz. AFC Filter Network
R83	1500Ω 5%	½		BTS-1500-5%	Horiz. Osc. Cathode
R84	5600Ω 5%	½		BTS-5600-5%	Horiz. Osc. Plate
R85	100KΩ 5%	½		BTS-100K-5%	Horiz. Discharge Grid
R86	220KΩ 5%	½		BTS-220K-5%	Horiz. Discharge Plate
R87	10KΩ	½		BTA-10K	Filter
R88	1000 20%	½			Parasitic Supp.
R89	470KΩ	½		BTS-470K	Horiz. Output Grid
R90	68Ω 5%	1		BW-1-68-5%	Horiz. Output Cathode
R91	39KΩ	2		BT-2-39K	Horiz. Output Screen
R92	51KΩ 5%	2			Horiz. Output Screen
R93	3.3Ω	½			HV Rect. Filament-Wire Wound
R94	1 Meg. 20%	½			HV Filter
R95	470Ω	1		BTA-4700	Focus Coil Shunt

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	720VCT	5VAC	6.3VAC	AB4107-1			
	@ 1.5A	.165ADC	@ 3A	@ 1.8A SEC. 4				
				6.3VAC @ 6A				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	150Ω	780Ω	AB47006-3	A-8111	A-3000	TBO-1	Vert. Block Osc. Trans.
T3	355Ω	5.5Ω	PC62087-1		8VO-6		Hor. Output Trans.
	Tap @ 47Ω	Tap @ 1.5Ω & 5.3Ω SEC. 2					
		0Ω					
T4	660Ω	6.5Ω	AB44062-4	A-8115	A-3035	TBO-1	Vert. Output Trans.
T5A	14Ω		PC70004	DY-7	MD-3		Hor. Deflection Coil
B	82Ω						Vert. Deflection Coil
T6	300Ω		PC70005-1	FC-10	MF-1		Focus Coil

SPARTON MODELS 5010, 5011, 5014, 5015, 5056, 5057, 5071, 5072

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SPARTON	STANCOR	MERIT	CHICAGO	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
T7	5000Ω	3.9Ω	385Ω	.5Ω	AB44063-2	A-3849	A-3019	RO-9 ⑤	⑤ Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	SPARTON PART No.	JENSEN PART No.	QUAM PART No.	
SP1	175Ω	3.9Ω	PC-63000-28		10E175S	
	CONE DIA.	V. C. DIA.				
SP2	9 1/4"	1"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	SPARTON PART No.	MEISSNER PART No.	
L1	Ant. Coil	0Ω	0Ω			Low Band Part of tuner PD93153
L2	Ant. Coil	0Ω	0Ω			High Band Part of tuner PD93153
L3	RF, Mixer Grid & Osc.	0Ω				Low Band Part of tuner PD93153 High Band Part of tuner PD93153
L4	RF Coil	0Ω				High Band Part of tuner PD93153
L5	Mixer Grid	0Ω				High Band Part of tuner PD93153
L6	Osc. Coil	0Ω				Part of tuner PD93153
L7	RF Choke	.2Ω				Part of tuner PD93153
L8	lst Video IF	.1Ω				Part of tuner PD93153
L9	Fil. Choke	0Ω				Part of tuner PD93153
L10	Fil. Choke	0Ω				
L11	Fil. Choke	0Ω		AA6651-1		
L12	RF Choke	0Ω		AA6651-1		
L13	2nd Video IF	.1Ω		AB43523-5		
L14	Fil. Choke	0Ω		AA6651-1		
L15	RF Choke	3Ω		AA6650-1		
L16	Fil. Choke	0Ω		AA6651-1		
L17	3rd Video IF	.1Ω		AB43523-6		
L18	RF Choke	3Ω		AA6650-1		
L19	Fil. Choke	0Ω		AA6651-1		
L20	4th Video IF	.1Ω		AB43523-6		
L21	Fil. Choke	0Ω		AA6651-1		
L22	Peaking	10Ω		AA6613-4	19-1922	200 microhenries
L23	Peaking	17Ω		AA6613-8		600 microhenries
L24	Peaking	9.7Ω		AA6613-9	19-1921	175 microhenries
L25	Peaking	18Ω		AA6613-8		600 microhenries
L26	Sound IF	1.5Ω		AB43523-7		
L27	Ratio Det. Trans.	4.8Ω	1.1Ω	AA6684-4		
L28	Horiz. Osc.	63Ω		AA6403-1		
L29	Horiz. Size	.2Ω	68Ω	AA6405-2		
L30	AC Line Choke	0Ω	0Ω	AA6664-1		

MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
M1	RF Tuner	PD93153	Complete with tubes
M2	Fuse	PA4212-1	.25A 250V Type GJV
M3	Switch		High Band-Low Band
M4	Ion Trap	PA1175	
M5	Trimmer	PA4368	Horiz. Drive 20-270MMF
M6A	Trimmer		Low Band Antenna
B	Trimmer		High Band Antenna
M7	Tuning Cap		
	Knob	PA5647	Channel Indicator (Table)
	Knob	PA5648	Tuning (Console)
	Knob	PA5649	Tuning
	Knob	PA5646	Horiz. Hold Inner Dual
	Knob	PA5645	Vert. Hold Outer Dual
	Knob	PA5644	Dummy Dual

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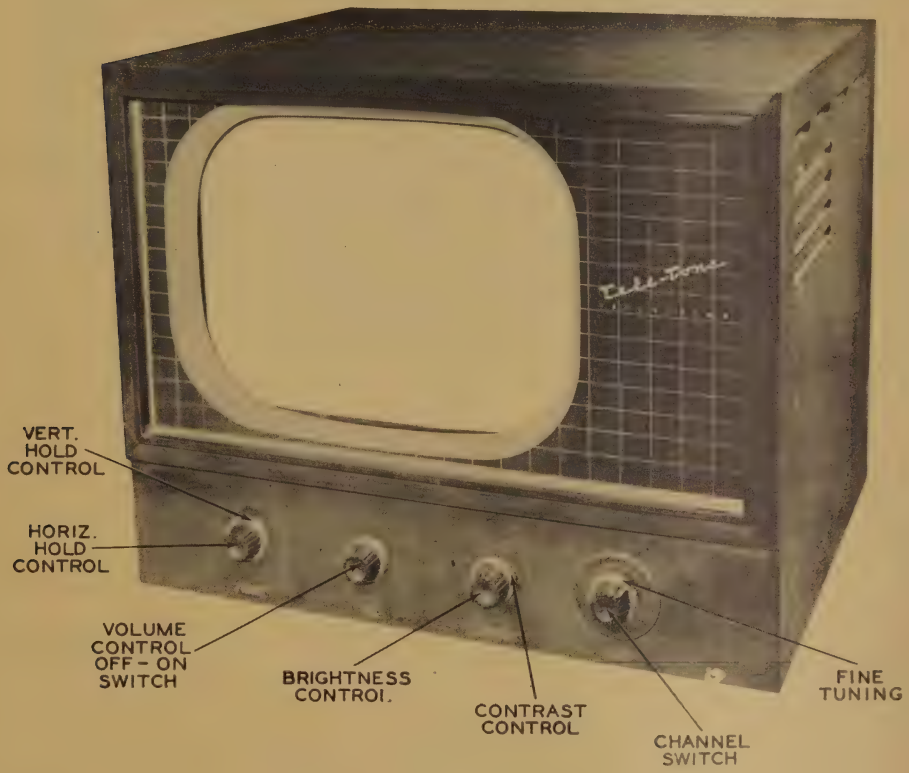

MODEL TV-306

TELE-TONE MODELS TV-306, TV-307 (Ch. TY, TZ)

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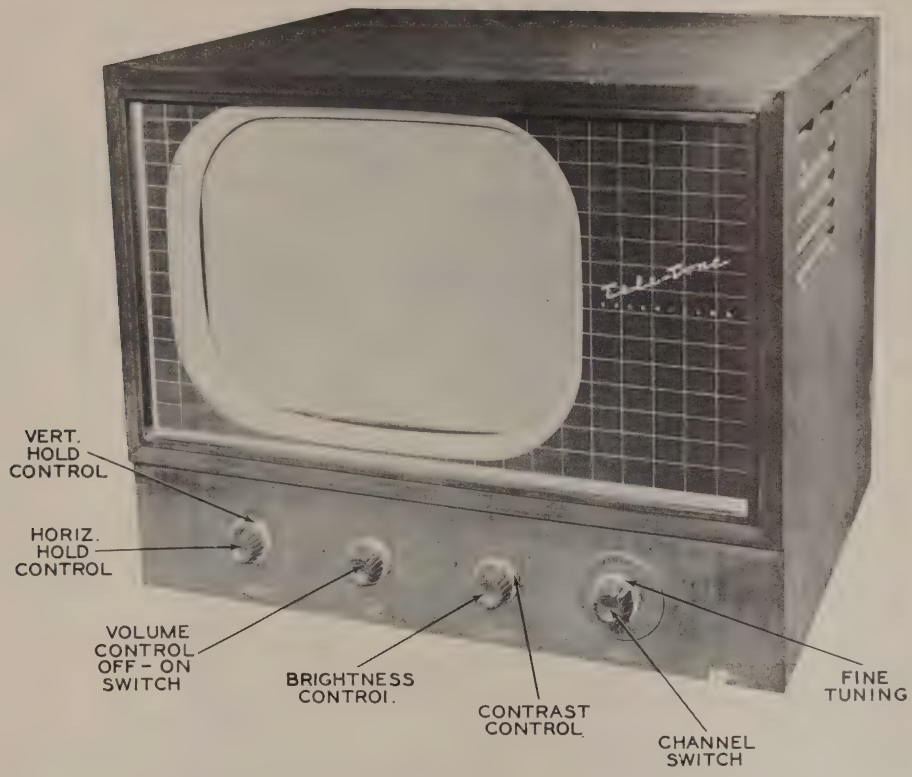

TELE-TONE MODEL TV-306

TRADE NAME	Tele-Tone Model TV-306, TV-307 (Ch. TY and TZ)
MANUFACTURER	Tele-Tone Radio Corp., 540 West 58th St., New York, New York
TYPE SET	Television Receiver
TUBES	Twenty One
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	2.1 Amp. at 117 Volts AC

TUNING RANGE—Channels 2 thru 13

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 19
Fine Tuning Drive Cord Stringing 19
Horiz. Sweep Circuit Adjustment 13
Parts List and Description 14, 15, 16
Photographs
Cabinet-Rear View 13
Capacitor Identification 11, 18
Chassis-Top View 3, 7
Photographs (continued)
RF Tuner 10
Resistor Identification 12, 17
Trans., Inductor and Alignment Identification 4, 9
Schematic (Main) 2
Schematic (12 Channel Tuner) 19
Tube Placement Chart 5
Voltage and Resistance Measurements 8

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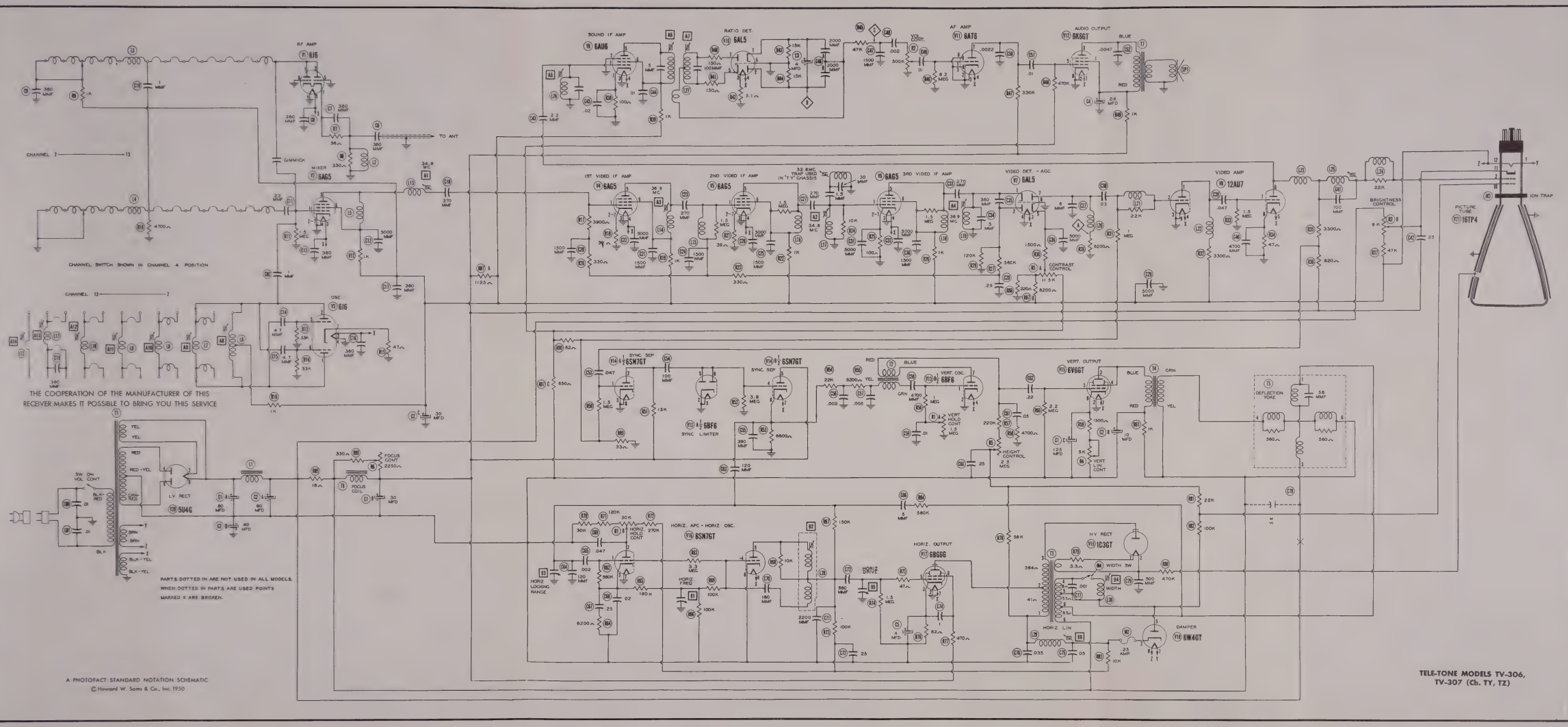
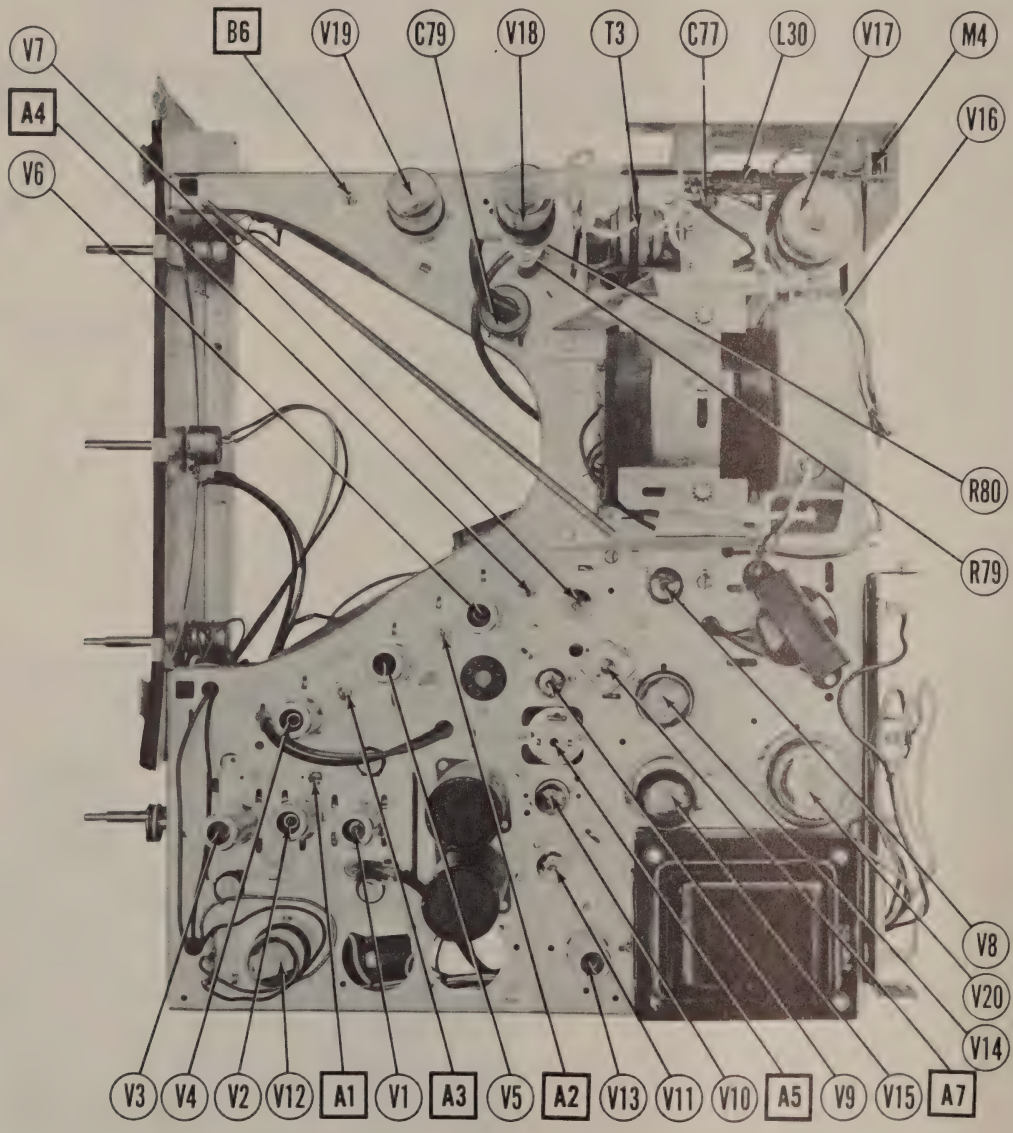
TELE-TONE MODELS TV-306, TV-307 (Ch. TY, TZ)

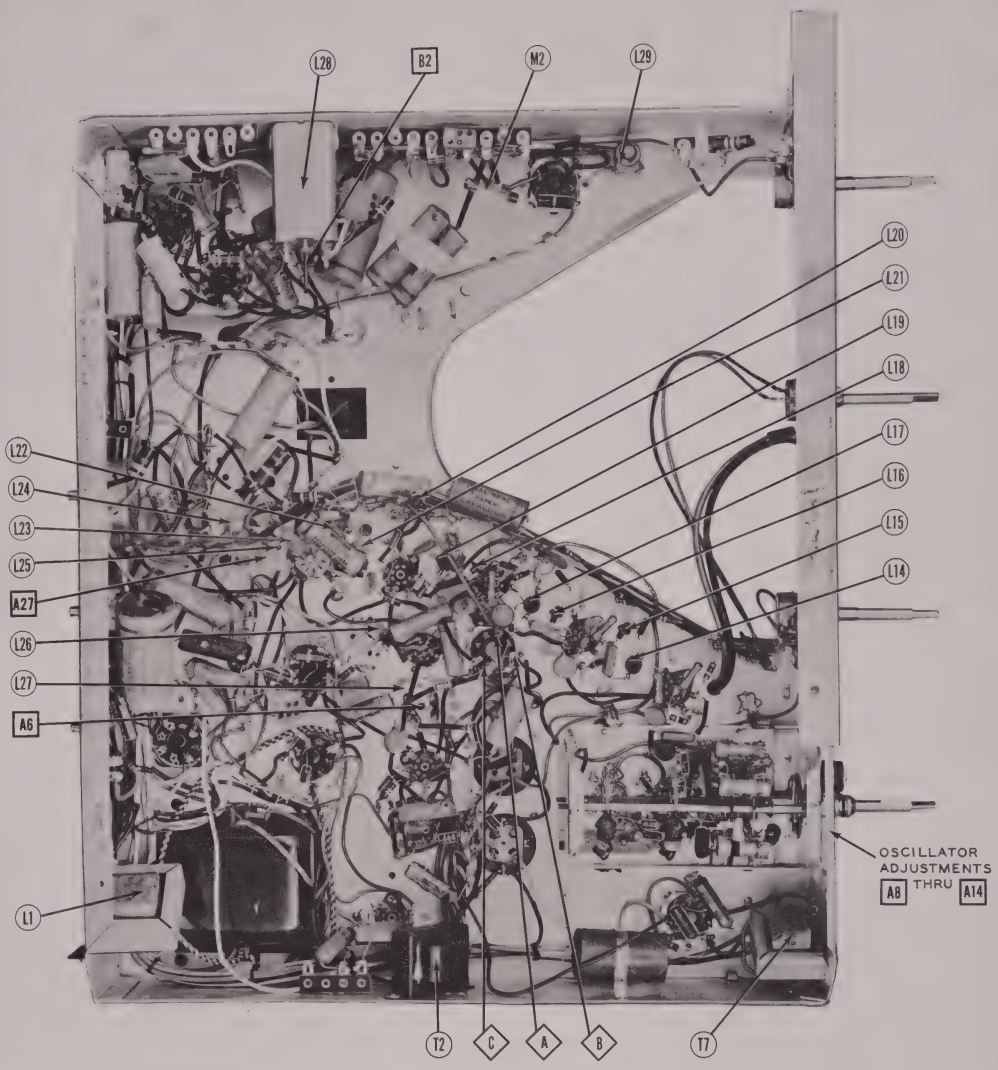


TELE-TONE MODELS TV-306, TV-307 (Ch. TY, TZ)

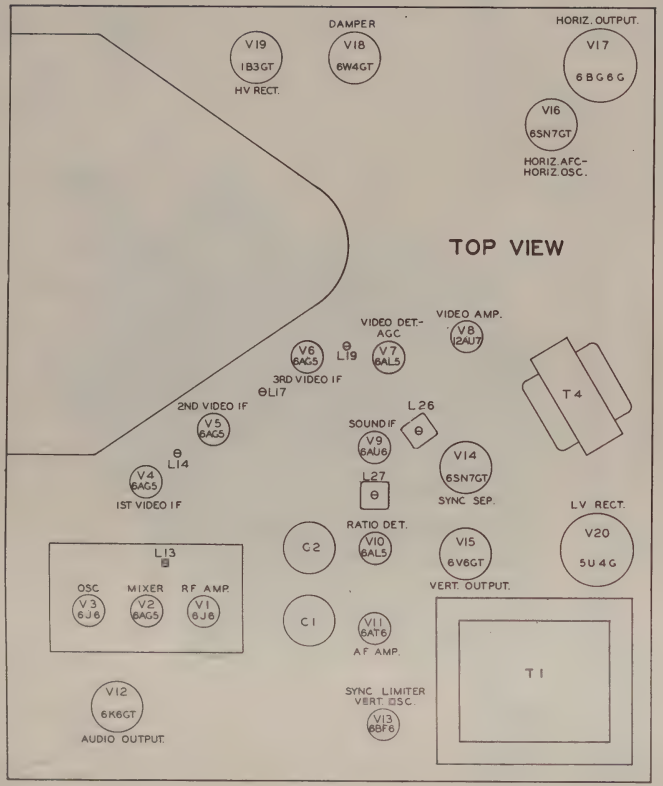
TELE-TONE MODELS TV-306, TV-307 (Ch. TY, TZ)

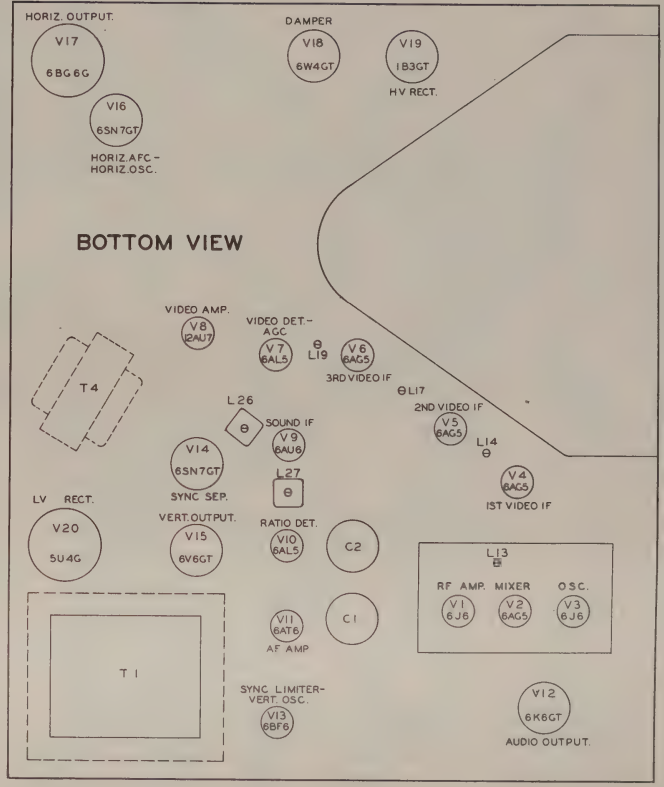


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

TELE-TONE MODELS TV-306, TV-307 (Ch. TY, TZ)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If set is to be aligned with picture tube removed, the end of the high voltage lead should be securely taped and dressed away from the chassis.

VIDEO IF ALIGNMENT

Remove the local oscillator tube (V3) to prevent erroneous indications.
Set contrast control to indicate a minus 2 volts on pin 7 of V7.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	34.8MC (Unmod.)	Any	DC Probe to Point (A). Common to chassis.	A1, A2	Adjust for maximum deflection. Attenuate signal generator to maintain a maximum reading of minus 1.5 volts.
2.	Direct	"	36.9MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	34.8MC (10MC SWP)	32.8MC 34.8MC 36.9MC 37.3MC	Any	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 7 (Grid) of 12AU7 (V8). Low side to chassis.	4.5MC (Unmod)	Any channel not used locally	DC Probe to Point (B). Common to chassis.	A5, A6	Adjust for maximum deflection.
5.	.01MFD	"	"	"	DC Probe to Point (C). Common to chassis.	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 7 (Grid) of 12AU7 (V8). Low side to chassis.	4.5MC (450KC Sweep)	4.5MC	Any channel not used locally	Vert. Amp. to Point (B). Low side to chassis.	A5, A6	Disconnect stabilizer capacitor C3. Adjust for maximum amplitude and symmetry as per figure 2.
5.	.01MFD	"	"	"	"	Vert. Amp. to Point (C). Low side to chassis.	A7	Reconnect capacitor C3. Adjust A7 so 4.5MC marker occurs at center of cross-over lines as per figure 3. SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT (7 COIL TUNER)

Replace the local oscillator tube (V3).
Set the fine tuning control to the mid-position of its range.
The RF and Mixer portions of this receiver are pre-set at the factory and should not require adjustment in the field.
The seven oscillator coils are so arranged that channels 3 thru 13 are paired with one variable and two fixed coils, that is, channels 3 and 4, 5 and 6, etc., which have sufficient hand width to cover two channels. Adjust each oscillator coil to channel that is available in the area that receiver is to be serviced.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to ungrounded antenna terminal. Low side to chassis.	57MC (10MC SWP)	55.25MC 59.75MC	2	Vert. Amp. to Point (A). Low side to chassis.	A8	Adjust to place sound marker as shown in figure 4. The video marker should be at 50%.
			63MC (10MC SWP) 69MC (10MC SWP)	61.25MC 65.75MC 67.25MC 71.75MC	3 or 4		A9	
			79MC (10MC SWP) 85MC (10MC SWP)	77.25MC 81.75MC 83.25MC 87.75MC	5 or 6		A10	
			177MC (10MC SWP) 183MC (10MC SWP)	175.25MC 179.75MC 181.25MC 185.75MC	7 or 8		A11	
			189MC (10MC SWP) 195MC (10MC SWP)	187.25MC 191.75MC 193.25MC 197.75MC	9 or 10		A12	
			201MC (10MC SWP) 207MC (10MC SWP)	199.25MC 203.75MC 205.25MC 209.75MC	11 or 12		A13	
			213MC (10MC SWP)	211.25MC 215.75MC	13		A14	

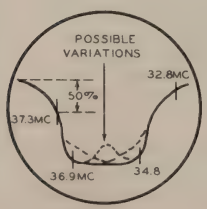


FIG. 1

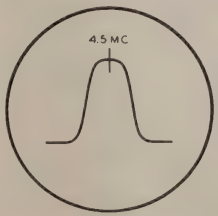


FIG. 2

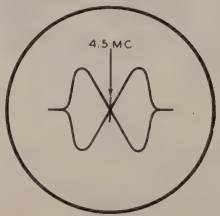


FIG. 3

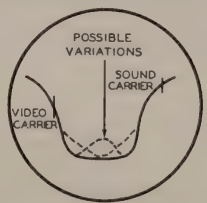


FIG. 4

ALIGNMENT INSTRUCTIONS (CONT.)

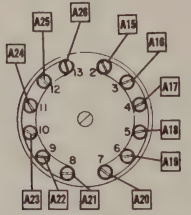
OSCILLATOR ALIGNMENT (12 COIL TUNER)

Replace the local oscillator tube (V3).
Set the fine tuning control to the mid-position of its range.
The RF and mixer portions of this receiver are pre-set at the factory and should not require adjustment in the field.

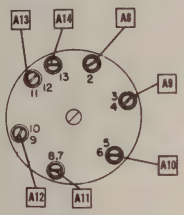
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to ungrounded antenna terminal. Low side to chassis.	57MC (10MC SWP)	55.25MC 59.75MC	2	Vert. Amp. to Point (A) Low side to chassis.	A15	Adjust to place sound marker as shown in figure 4. The video marker should be at 50%.
			63MC (10MC SWP)	61.25MC 65.75MC	3		A16	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A17	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A18	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A19	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A20	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A21	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A22	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A23	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A24	
			207MC (10MC SWP)	205.25MC 209.75MC	12		A25	
			213MC (10MC SWP)	211.25MC 215.75MC	13		A26	

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.01MFD	High side to pin 7 (Grid) of 12AU7 (V8). Low side to chassis.	4.5MC (400∿ Mod.)	Not used	Any	Vert. Amp. to pin 2 (Grid) of picture tube. Low side to chassis.	A27	Adjust for minimum 400∿ indication on scope. After alignment is complete, tune in test pattern and adjust A27 for maximum vertical wedge definition.

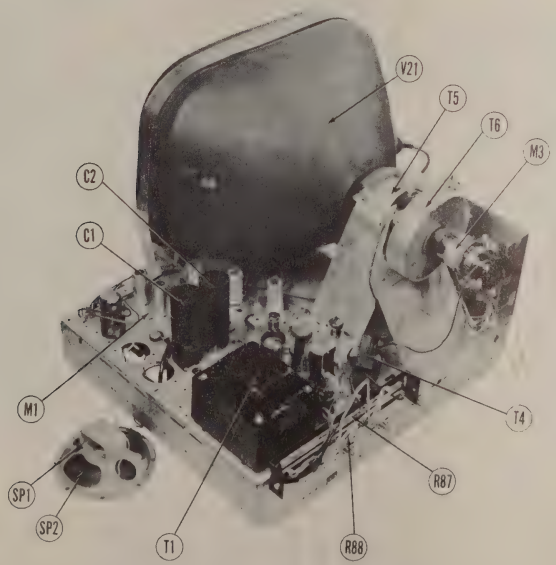


12 CHANNEL TUNER



7 CHANNEL TUNER

OSCILLATOR ALIGNMENT POINTS



CHASSIS-TOP VIEW

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	125VDC	125VDC	6.3VAC	0V.	0V.	0V.	1.1VDC		
V 2	6AG5	-3VDC	0V.	6.3VAC	0V.	140VDC	140VDC	0V.		
V 3	6J6	120VDC	120VDC	6.3VAC	0V.	§-2.6VDC	§-3.9VDC	.5VDC		
V 4	6AG5	-4.2VDC	0V.	0V.	6.3VAC	150VDC	150VDC	0V.		
V 5	§AG5	-4.2VDC	0V.	0V.	6.3VAC	150VDC	150VDC	0V.		
V 6	6AG5	0V.	1VDC	0V.	6.3VAC	140VDC	140VDC	1VDC		
V 7	6AL5	0V.	-15VDC	6.3VAC	0V.	-15VDC	0V.	-.4VDC		
V 8	12AU7	130VDC	-.8VDC	0V.	6.3VAC	6.3VAC	160VDC	-.1VDC	1VDC	0V.
V 9	6AU6	0V.	0V.	0V.	6.3VAC	140VDC	140VDC	1VDC		
V 10	6AL5	.2VDC	-.2VDC	1.4VDC	6.3VAC	-.1VDC	0V.	-.1VDC		
V 11	§AT6	-.6VDC	0V.	0V.	6.3VAC	0V.	0V.	65VDC		
V 12	6K6GT	245VDC	0V.	205VDC	215VDC	-4.5VDC	-15VDC	6.3VAC	0V.	
V 13	6BF6	-22VDC	0V.	0V.	6.3VAC	-.7VDC	-.7VDC	350VDC 130VDC		
V 14	6SN7GT	-.6VDC	140VDC	0V.	-1.4VDC	245VDC	9.8VDC	6.3VAC	0V.	
V 15	6V6GT	0V.	0V.	215VDC	215VDC	-75VDC	0V.	6.3VAC	-60VDC -70VDC	
V 16	6SN7GT	-85VDC	47VDC	-95VDC	-160VDC	100VDC	-100VDC	0V.	6.3VAC	
V 17	6BG6G	0V.	0V.	-90VDC	0V.	-110VDC	0V.	6.3VAC	240VDC	TOP CAP *
V 18	6W4GT	380VDC	0V.	470VDC	0V.	270VDC	0V.	¶	¶	
V 19	1B3GT	* DO NOT MEASURE.								
V 20	5U4G	0V.	280VDC	0V.	370VAC	0V.	370VAC	0V.	280VDC	
V 21	16PT4	¶	160VDC	PIN 10 360VDC	PIN 11 270VDC	PIN 12 ¶				

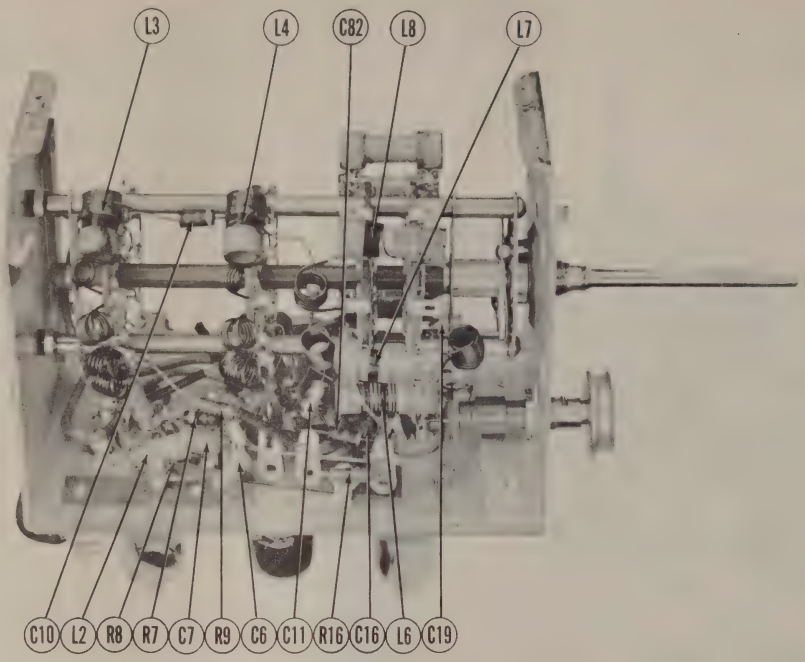
FOCUS CONTROL IN FULLY COUNTERCLOCKWISE POSITION.
* DO NOT MEASURE.
§ TAKEN WITH VACUUM TUBE VOLTMETER.
¶ 6.3VAC MEASURED ACROSS FILAMENTS.

RESISTANCE READINGS

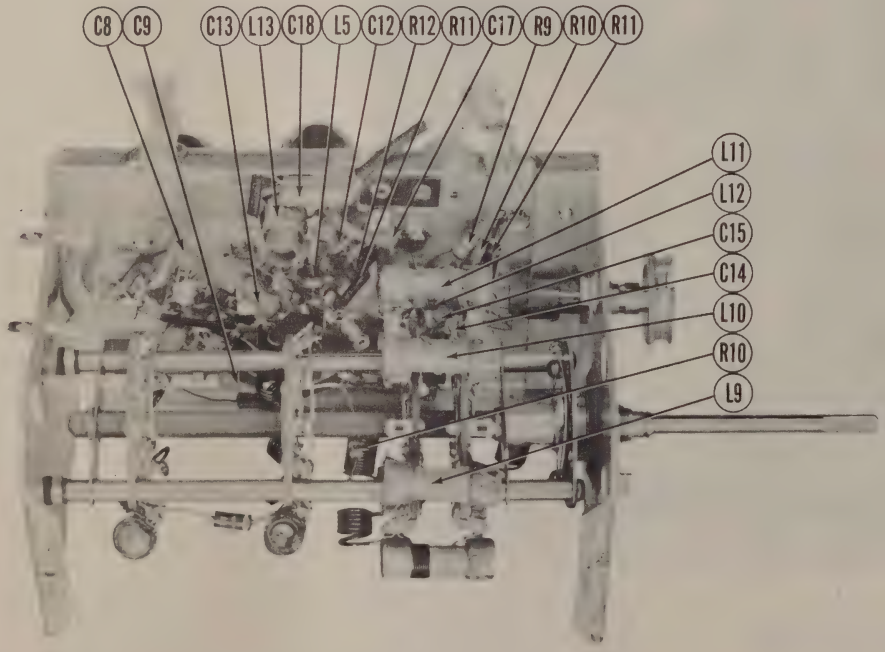
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†2.6KΩ	†2.6KΩ	.1Ω	0Ω	0Ω	0Ω	59Ω		
V 2	6AG5	1.5 Meg.	0Ω	.1Ω	0Ω	†2.6KΩ	†2.6KΩ	0Ω		
V 3	6J6	†2.6KΩ	†2.6KΩ	.1Ω	0Ω	33KΩ	33KΩ	47Ω		
V 4	6AG5	685KΩ	39Ω	0Ω	.1Ω	†2.6KΩ	†2.6KΩ	39Ω		
V 5	6AG5	680KΩ	39Ω	0Ω	.1Ω	†2.6KΩ	†2.6KΩ	39Ω		
V 6	6AG5	.1Ω	100Ω	0Ω	.1Ω	†2.6KΩ	†2.6KΩ	100Ω		
V 7	6AL5	.1Ω	120KΩ	.1Ω	0Ω	1.8KΩ	0Ω	8.2KΩ		
V 8	12AU7	†4.9KΩ	1 Meg.	0Ω	.1Ω	.1Ω	†4.6KΩ	1.5 Meg.	47Ω	0Ω
V 9	6AU6	1.5Ω	0Ω	0Ω	.1Ω	†2.6KΩ	†2.6KΩ	100Ω		
V 10	6AL5	15KΩ	15KΩ	2.7Ω	.1Ω	Inf.	0Ω	Inf.		
V 11	6AT6	8.2 Meg.	0Ω	0Ω	.1Ω	0Ω	0Ω	†330KΩ		
V 12	6K6GT	†250Ω	0Ω	†1.9KΩ	†1.5KΩ	470KΩ	115Ω	.1Ω	0Ω	
V 13	6BF6	2.5 Meg.	0Ω	0Ω	.1Ω	3.9 Meg.	3.9 Meg.	†340KΩ †2.8 Meg.		
V 14	6SN7GT	1.5 Meg.	†15KΩ	0Ω	3.9 Meg.	†250Ω	6.8KΩ	.1Ω	0Ω	
V 15	6V6GT	Inf.	0Ω	†2.1KΩ	†2.1KΩ	2.2 Meg.	Inf.	.1Ω	2.4KΩ §.5KΩ	
V 16	6SN7GT	750KΩ	†125KΩ	280KΩ	200KΩ	†240KΩ	760Ω	0Ω	.1Ω	
V 17	§BG6G	Inf.	0Ω	840Ω	Inf.	1.5 Meg.	Inf.	.1Ω	†800Ω	TOP CAP †130KΩ
V 18	6W4GT	†100KΩ	Inf.	†130KΩ	Inf.	†50Ω	Inf.	†1.5KΩ	†1.5KΩ	
V 19	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP †130KΩ
V 20	5U4G	Inf.	9.5KΩ	Inf.	800Ω	Inf.	800Ω	Inf.	9.5KΩ	
V 21	16TP4	†1.5KΩ	†4.6KΩ	PIN 10 †100KΩ	PIN 11 9.5KΩ	PIN 12 †1.5KΩ				

FOCUS CONTROL IN FULLY COUNTERCLOCKWISE POSITION.
† MEASURED FROM PIN 2 OF V20.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.

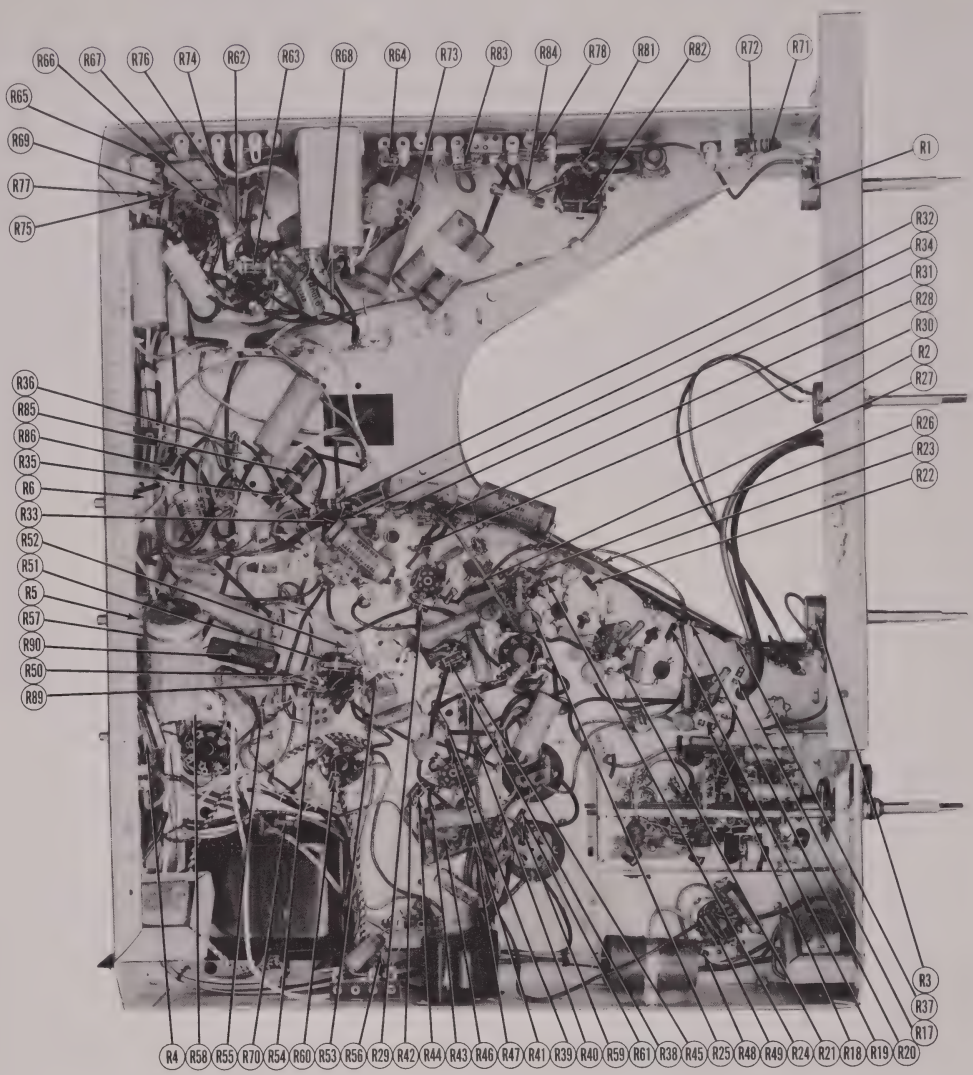


RF TUNER-RIGHT SIDE

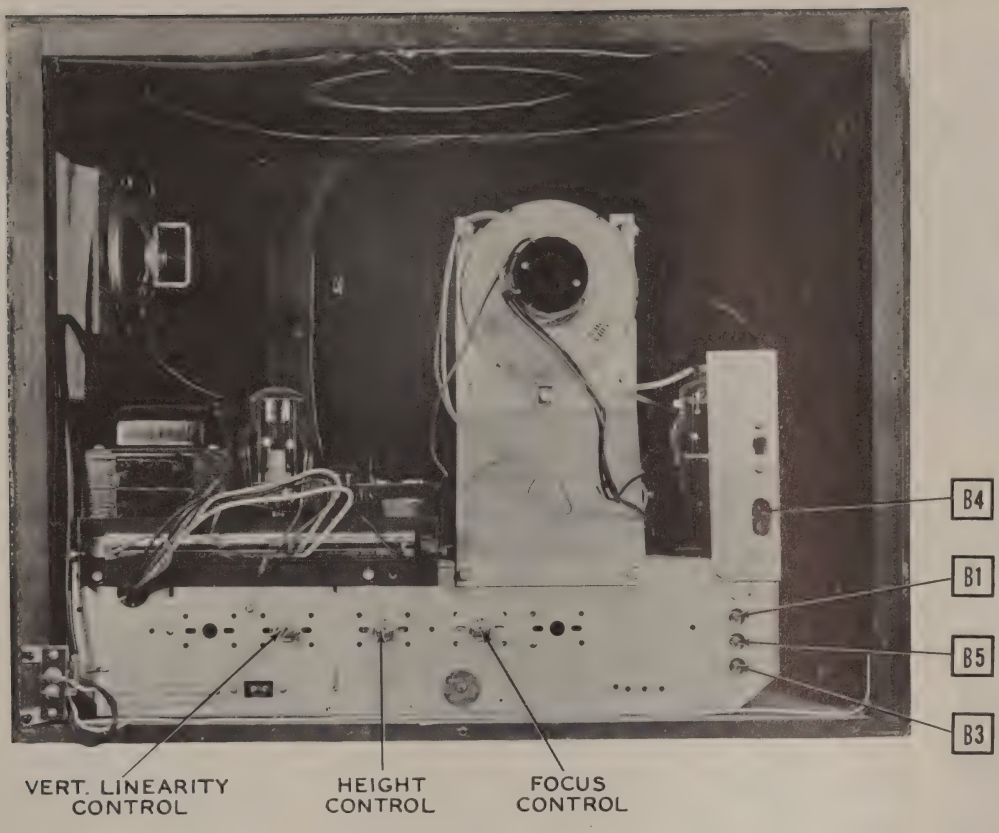


RF TUNER-LEFT SIDE

CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW- RESISTOR IDENTIFICATION



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK:

Tune in a test pattern and turn horizontal hold control to extreme counter-clockwise position. Picture should remain in synchronization. Turn channel selector switch to another channel and then back to original channel. Normally, the picture should be out of synchronization. Turn the control clockwise and the picture should slowly begin to synchronize and finally lock-in. This should occur when the control is approximately 90° from the extreme counter-clockwise position.

The picture should remain in synchronization for another 90° in the clockwise direction of the control. At the extreme clockwise position the picture should again drop out of synchronization and $3\frac{1}{2}$ to $4\frac{1}{2}$ bars should be seen sloping downward to the right. If the receiver fails to hold synchronization during this check with the hold control at the extreme counter-clockwise position or fails to hold synchronization for at least 60° in the clockwise direction from the point when it drops into "sync" it will be necessary to align the horizontal oscillator circuit as follows:

(A) HORIZONTAL OSCILLATOR ALIGNMENT

Turn horizontal hold control to extreme clockwise position. Tune in a test pattern and adjust trimmer B1 until picture is out of sync and shows $3\frac{1}{2}$ to $4\frac{1}{2}$ bars sloping downward to the right. If the trimmer has insufficient range, set it to its mid-position (one turn from the right) and adjust slug B2 until bars appear.

(B) HORIZONTAL LOCKING ALIGNMENT

Turn the horizontal hold control to full counter-clockwise position. Switch to another channel and back to the original again. Slowly turn horizontal hold control clockwise and note the least number of diagonal bars present just before picture sync. If more than $4\frac{1}{2}$ bars are present just before picture syncs adjust "horizontal lock" trimmer B3 slightly clockwise. If less than $3\frac{1}{2}$ bars are present adjust B3 slightly counter-clockwise and switch channel selector to another channel and back again. Recount bars present at the "lock-in" point. Repeat this procedure until $3\frac{1}{2}$ to $4\frac{1}{2}$ bars are present.

Repeat steps (A) and (B) until conditions exist as outlined under "Horizontal Oscillator Alignment Check".

WIDTH, DRIVE AND HORIZONTAL LINEARITY ADJUSTMENTS

Turn width control B4 to maximum clockwise position. Adjust "horizontal drive" trimmer B5 for maximum brightness and linearity. Adjust horizontal linearity B6 for best linearity in the right half of the picture. Readjust width control until picture fills the mask.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TELE-TONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6J6	6J6	7BD	
V2	Mixer	6AG5	6AG5	7BD	
V3	Oscillator	6J6	6J6	7BD	
V4	1st Video IF	6AG5	6AG5	7BD	
V5	2nd Video IF	6AG5	6AG5	7BD	
V6	3rd Video IF	6AG5	6AG5	7BD	
V7	Video Det.-AGC	6AL5	6AL5	6BT	
V8	Video Amp.	12AU7	12AU7	9A	
V9	Shunt IF	6AU6	6AU6	7BK	
V10	Ratio Det	6AL5	6AL5	6BT	
V11	AF Amp.	6AT6	6AT6	7BT	
V12	Audio Output	6K6GT	6K6GT	7S	
V13	Sync Limiter-Vert. Osc.	6BF6	6BF6	7BT	
V14	Sync Sep.	6SN7GT	6SN7GT	8BD	
V15	Vert. Amp.	6V6GT	6V6GT	7AC	
V16	Hor. AFC-Hor. Osc	6SN7GT	6SN7GT	8BD	
V17	Hor. Output	6BG6G	6BG6G	5BT	
V18	Damper	6W4GT	6W4GT	4CG	
V19	HV Rect	1B3GT	1B3GT	3C	
V20	LV Rect	5U4G	5U4G	5T	
V21A	Picture Tube	16TP4	16TP4	12D	Used in model 306
B	Picture Tube	16HP4	16HP4	12D	Used in model 307

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TELE-TONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	60	450	TCE-147D	AF2X12H125		UP1DJ		TVL-4811	■ Filter *
B	30	400		B		1185			▲ Filter *
C	125	50							▲ Filter *
C2A	40	45	TCE-148D	AF1G2J16G8		UP3DJ		TVL-4710	● Vert. Output Dec. *
B	10	400		B		1186			● Filter *
C	30	300							Filter *
D	40	150							Stabilizing Cap.
C4	34	35	TCE104D	PRS150/4		BR550		TVA-50	Output Decoupling
C5	4	25	TCE104D	PRS350/24		BR3035A		TVA-93	Hor. Output Cath.
C6	360					BR550		TVA-50	Ant. Coupling
C7	360			GP360M	D6-391		GP2K-360		RF Cath. Bypass
C8	360			GP360M	D6-391		GP2K-360		RF Fil. Bypass
C9	360			GP360M	D6-391		GP2K-360		RF Bypass
C10	1				D2-2				RF Coupling
C11	2			CN22JNP0	D2-22		GP1K-22		RF Coupling
C12	5000			BPD-5	D6-502		81L-005		Mixer Decoupling
C13	360			GP360M	D6-391		GP2K-360		Mixer Fil. Bypass
C14	360			CN4 7DN750			N750K-4. 7		Osc. Feedback
C15	6.7			CN4 7DN750			N750K-4. 7		Osc. Feedback
C16	360			GP360M	D6-391		GP2K-360		Osc. Fil. Bypass
C17	360			GP360M	D6-391		GP2K-360		RF Bypass
C18	270	500	TCM27I-7	1468-00025	D6-271		GP2K-270		IF Coupling
C19	360			GP360M	D6-391		GP2K-360		Fixed Trimmer
C20	1500		TCC152-SP	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	AGC Filter
C21	1500		TCC152-SP	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	1st V. IF Decoup.
C22	5000		TCP502-10	BPD-5	D6-502	1D5D5	81L-005	29C1	1st V. IF Fil. Byp.
C23	270	500	TCM27I-7	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C24	1500		TCC152-SP	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	AGC Filter
C25	1500		TCC152-SP	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	2nd V. IF Decoup.
C26	5000		TCP502-10	BPD-5	D6-502	1D5D5	81L-005	29C1	2nd V. IF Fil. Byp.
C27	270	500	TCM27I-7	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C28	.25	200	TCP254-1	P488-25		GT2P25		TC-2	AGC Filter
C29	5000		TCP502-10	BPD-5	D6-502	1D5D5	81L-005	29C1	RF Bypass
C30	1500		TCC152-SP	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	3rd V. IF Decoup.
C31	5000		TCP502-10	BPD-5	D6-502	1D5D5	81L-005	29C1	3rd V. IF Cath. Byp.
C32	5000		TCP502-10	BPD-5	D6-502	1D5D5	81L-005	29C1	3rd V. IF Fil. Byp.
C33	270	500	TCM27I-7	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C34	5	300	TCP502-8	1468-000005	D2-4.7	5R5V5	NP0K-5	MS-55	Fixed Trimmer
C35	360		TCC361-10	GP360M	D6-391	5W5T3	GP2K-360	1FM-335	IF Coupling
C36	5000		TCP502-10	BPD-5	D6-502	1D5D5	81L-005	29C1	DAGC Dec.
C37	6	300	TCC060-7	1468-000005	D2-6.8	5W5V5	NP0K-6.8	MS-55	Y. Diode Filter
C38	.05	600	TCP503-10	P688-05		PTE5S5		TM-15	Video Coupling
C39	.047	600	TCP4S03-10	P688-047		PTE4S3		TM-14	Video Coupling
C40	4700		TCC472-7	GP4700M	D6-472	1D5D5	GP2M-0047	1FM-35	2nd V. Amp. Cath.
C41	100		TCM01-7	GP100K	D6-101	5W5T1	GP1K-100	1FM-31	Fixed Trimmer
C42	.25	400	TCP254-4	P488-25		GT4P25		TC-2	Pic. Tube Cath. Byp.
C43	2.2		TCC2.2-7		D2-2.2				S. IF Coupling
C44	.01	600	TCP4M03-4	P688-01		PTE4S1	81I-01	TM-11	S. IF Decoupling
C45	.02	200	TCP203-1	P488-02		PTE4S2		TM-12	S. IF Cath. Byp.
C45A	2000		TCC2-1	GP2000M	D6-202	1W5D2	582-2 x 002	29C5	Diode Load Cap.
B	2000			GP2000M	D6-202	1W5D2			Diode Load Cap.
C46	1500		TCC152-7	GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	De-emphasis
C47	1000	600	TCP202-10	P688-002	D6-202	PTE5D2	GP2M-002	TM-23	Audio Coupling
C49	.01	600	TCPM03-10	P688-01	D6-103	PTE4S1	81I-01	TM-11	Audio Coupling
C50	.0022	600	TCPM202-10	P688-002	D6-222	PTE4D2	GP2M-0022	TM-23	De-emphasis
C51	.01	600	TCPM03-10	P688-01	D6-103	PTE4S1	81I-01	TM-11	Audio Coupling
C52	.0047	600	TCPM502-10	P688-0047	D6-472	PTE4D5	GP2M-0047	TM-25	Output Plate Bypass
C53	.047	600	TCPM503-10	P688-047		PTE5S3		TM-15	Sync. Coupling
C54	100	500	TCM01-7	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Sync. Coupling
C55	390	500	TCM39I-7	1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	2nd Sync. Sep. Cath.
C56	.002	600	TCP202-10	P688-002	D6-202	PTE5D2	GP2M-002	TM-23	Integrator Net.
C57	.005	600	TCP502-10	P688-005	D6-502	PTE5D5	81I-005	TM-25	Integrator Net.
C58	4700	500	TCM472-8	1467-005	D6-472	1D5D5	GP2M-0047	1FM-35	Vert. Osc. Grid Cap.
C59	.01	600	TCPM103-4	P488-01	D6-103	PTE4S1	81I-01	TM-11	Vert. Osc. Grid Cap. §
C60	.35	1000	TCP354-10-SP	1084-25					Decoupling *
C61	.05	600	TCP503-10	P688-05		PTE5S5		TM-15	Vert. Discharge
C62	.22	400	TCPM254-4	P488-22		GT4P25		TC-2	Vert. Sweep Coupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TELE-TONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C63	120	500	TCM12I-7	1468-00015	D6-121	5W5T15	GP2K-120	1FM-315	Hor. Sync. Coupling
C64	120	500	TCM12I-7	1468-00015	D6-121	5W5T15	GP2K-120	1FM-315	Voltage Divider
C65	.002	600	TCP202-10	P688-002	D6-202	PTE5D2	GP2M-002	TM-23	Hor. Sync. Coupling
C66	5	1500	TCM050-20						Hor. Feedback
C67	25	400	TCP254-4	P488-25		GT4P25		TC-2	AFC Filter
C68	02	400	TCP203-4	P488-02		PTE4S2		TM-12	AFC Filter
C69	047	600	TCPM503-10	P688-047		PTE6S5		TM-15	Hor. AFC Plate Byp.
C70	180	1000	TCM18I-29						Hor. Osc. Grid Cap.
C71	2200	500	TCM222-14		D6-222		GP2M-0022		Hor. Discharge
C72	.25	1000	TCP254-10-SP	1084-25					Decoupling *
C73	680	1000	TCM68I-13						Hor. Sweep Coupling
C74	1	1000	TCP104-13	1084-1					Hor. Output Screen §
C75	.05	1000	TCP503-13	P1688-05			GT1685	TR-15	Damper Filter †
C76	.035	1000	TCP353-13	P1088-033					Damper Filter
C77	.001	600		P688-001	D6-102	PTE4D1	GP2L-001	TM-21	Fixed Trimmer
C78	25	400	TCP254-4-SP	P488-25		GT4P25		TC-2	Hor. Sweep Coupling #
C79	500	20000	TCC501-4-SP-D			TV3-502			HV Filter
C80	.01	400	TCP103-10	P488-01	D6-103	PTE4S1	81I-01	TM-11	Line Filter
C81	.01	400	TCP103-10	P488-01	D6-103	PTE4S1	81I-01	TM-11	Line Filter
C82	1								Osc. Coupling

* In earlier models C1, C2, C60 and C72 are replaced by four electrolytics as listed below:

60/450V ▲ C1A replaced by 40/450V ▲ 10/400V ■C2B replaced by 10/400V ▲ 80/450V ▲ C2A replaced by 80/450V ▲ .25/1000 C60 replaced by 10/475V ▲ 60/450V ● C1A replaced by 40/450V ● 40/150V C3D replaced by 40/150V ■ 125/50V C1C replaced by 130/50V ▲ .25/1000 C70 replaced by 10/475V ▲ 30/450V ▲ C1B replaced by 30/400V ■ .30/300V ▲ C3C replaced by 30/300V ▲	Part No. TCE116DA Part No. TCE113DA Part No. TCE117DA Part No. TCE115DA

† Chassis TY uses .1MFD in this application
‡ Chassis TY uses .05MFD in this application
§ Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELE-TONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1.5 Meg.	½		Concentrikit B11-138 *			Vert. hold control-front
B	Switch	½	TVC-523-D	B11-123 *	RTY-63	SBB-640	Horiz. hold control-rear
C	Shaft End			E-187 *			Attach per instructions in "Concentrikit"
R2A	500KΩ	½	TVC-526-D	Q33-133	M-60-Z	B-60-S	Volume control and switch
B	Switch	½	Not Reg.	76-1	SW-A	Not Reg.	Attach to R2A per instructions
R3A	11.5KΩ	½	TVC-524-D		RTY-62	SBB-641	Contrast control-front
B	9KΩ	½	Not Reg.		Not Reg.	Not Reg.	Brightness control-rear
R4A	5000Ω	½	TVC-503-1D	Q11-114	AM-19-S	AN-10	Vert. linearity control
B	Shaft	½	Not Reg.	RQ	KSS-3 #	AK-1	Attach to R4A per instructions
R5A	2.5 Meg.	½	TVC-504-1D	Q11-239	AM-64-S	AN-83	Height control
B	Shaft	½	Not Reg.	RQ	KSS-3 #	AK-1	Attach to R5A per instructions
R6	225KΩ	4	TVC-509-1D		RTY-9	SVS-926	Focus control-Wire Wound

* Additional parts to be used with "Concentrikit".
# File slot in shaft to duplicate original.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELE-TONE PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 20% UNLESS OTHERWISE STATED.
R7	56Ω 10%	½			Parasitic Supp.
R8	330Ω	½	TRC331-1		RF Amp. Cathode
R9	1000Ω	½	TRC102-1	BTS-1000	RF Amp. Plate Decoupling
R10	4700Ω	½		BTS-4700	Mixer Coil Shunt
R11	1.5 Meg.	½	TRC155-1		Mixer Grid-See Note 2
R12	1000Ω	½	TRC102-1	BTS-1000	Mixer Decoupling
R13	47KΩ	½			Osc. Grid-See Note 1
R14	33KΩ	½			Osc. Grid-See Note 1
R15	47Ω	½	TRC470-1		Osc. Cathode
R16	1000Ω	½	TRC103-1	BTS-1000	Osc. Plate
R17	3900Ω 10%	½	TRC392-2	BTS-3900	1st Video Grid
R18	39Ω 10%	½	TRC390-2		1st Video IF Cathode
R19	1000Ω	½	TRC102-1	BTS-1000	1st Video IF Decoupling
R20	330Ω	½	TRC331-1		AGC Network
R21	39Ω 10%	½	TRC390-2		2nd Video IF Cathode
R22	1000Ω	½	TRC102-1	BTS-1000	2nd Video IF Decoupling
R23	330Ω	½	TRC331-1		AGC Network
R24	10KΩ 10%	½	TRC103-2		3rd Video IF Grid
R25	100Ω	½	TRC101-1		3rd Video IF Cathode
R26	1000Ω	½	TRC102-1	BTS-1000	3rd Video IF Decoupling
R27	560KΩ	½	TRC564-1		AGC Network
R28	8200Ω 10%	½	TRC822-2	BTS-8200	Video Det. Diode Load
R29	120KΩ	½	TRC124-1	BTS-120K	AGC Diode Load
R30	1500Ω	½	TRC152-1	BTS-1500	Delayed AGC
R31	1 Meg.	½	TRC105-1	BTS-1 Meg.	Video Amp. Grid
R32	3300Ω 10%	½	TRC332-5	BTA-3300	Video Amp. Plate
R33	1.5 Meg.	½		BTA-1.5 Meg.	Video Amp. Grid-See Note 2
R34	47Ω	½	TRC470-1		Video Amp. Cathode
R35	3300Ω 10%	½	TRC332-5	BTA-3300	Video Amp. Plate
R36	820Ω 10%	½		BTS-820	Video Amp. Plate
R37	47KΩ	½	TRC473-1	BTS-47K	Voltage Divider-See Note 3
R38	100Ω	½	TRC101-1		Sound IF Cathode
R39	1000Ω	½	TRC102-1	BTS-1000	Sound IF Decoupling
R40	150Ω				Balancing-See Note 4
R41	150Ω				Balancing-See Note 4
R42	5.1Ω		TRC51A-1		Ratio Det. Filament
R43	15KΩ 10%	½	TRC153-2	BTS-15K	Ratio Det. Diode Load
R44	15KΩ 10%	½	TRC153-2	BTS-15K	Ratio Det. Diode Load

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELE-TONE PART No.	IRC PART No.	IDENTIFICATION CODES
R45	47KΩ 10%	½		BTS-47K	De-emphasis
R46	8.2 Meg.	½		BTS-8.2 Meg.	AF Amp. Grid-See Note 5
R47	330KΩ	½	TRC334-1	BTS-330K	AF Amp. Plate
R48	470KΩ	½	TRC474-1	BTS-470K	Output Grid
R49	100KΩ	1	TRC104-1	BTA-100K	Output Decoupling
R50	1.5 Meg.	1		BTS-1.5 Meg.	Sync. Sep. Grid-See Note 2
R51	15KΩ	1	TRC153-6	BTA-15K	Sync. Sep. Plate
R52	3.9 Meg.	½	TRC395-1	BTS-3.9 Meg.	Sync. Sep. Grid
R53	680KΩ	½	TRC682-1	BTS-680K	Sync. Sep. Cathode
R54	22KΩ	½	TRC223-1	BTS-22K	Integrator
R55	8200Ω	½	TRC822-1	BTS-8200	Integrator
R56	1 Meg. 10%	1	TRC105-2	BTS-1 Meg.	Vert. Osc. Grid
R57	220KΩ	1	TRC224-1	BTS-220K	Vert. Osc. Plate
R58	47000Ω	½		BTS-47000	Vert. Peaking
R59	1500Ω	½	TRC152-1	BTS-1500	Vert. Output Cathode
R60	2.2 Meg.	½	TRC225-1	BTS-2.2 Meg.	Vert. Output Grid
R61	1000Ω	½	TRC102-1	BTS-1000	Vert. Output Decoupling
R62	560KΩ 5%	1	TRC561-2	BTS-560K-5%	Horiz. AFC Grid
R63	3.3 Meg. 5%	½	TRC335-6	BTA-3.3 Meg. 5%	Voltage Divider
R64	8200Ω 10%	½	TRC822-2	BTS-8200	Horiz. AFC Filter Network
R65	180KΩ 10%	½	TRC184-2	BTS-180K	Horiz. AFC Cathode
R66	100KΩ	½	TRC104-6	BTA-100K	Horiz. AFC Cathode
R67	150KΩ 10%	½	TRC154-2	BTS-150K	Horiz. AFC Filter Network
R68	10KΩ 10%	½	TRC103-2	BTS-10K	Horiz. Osc. Coil Shunt
R69	100KΩ 1%	½	TRC104-SP		Horiz. Osc. Grid
R70	30KΩ	½	TRC303-12	BTS-30K	Voltage Divider
R71	120KΩ	½	TRC124-1	BTS-120K	Voltage Divider
R72	270KΩ 10%	½	TRC274-5	BTS-270K	Voltage Divider
R73	100KΩ 5%	1	TRC104-6	BTA-100K-5%	Horiz. Osc. Plate
R74	1.5 Meg.	½		BTS-1.5 Meg.	Horiz. Output Grid
R75	47Ω	½	TRC470-1		Parasitic Supp.
R76	82Ω	1	TRC820-4	BW-1-47	Horiz. Output Cathode
R77	47Ω	½		BTS-470	Horiz. Output Screen-See Note 6
R78	56KΩ	½	TRC563-1	BTS-56K	Decoupling
R79	3.3Ω	2	TRC33A-1		HV Rect. Filament-See Note 7
R80	470KΩ	½			HV Filter
R81	22KΩ	½	TRC223-1	BTS-22K	Accelerating Anode Load
R82	100KΩ	½	TRC104-6	BTA-100K	Damper Plate
R83	10KΩ	½	TRC103-1	BTS-10K	Filter
R84	560Ω	½	TRC561-2	BTS-560	Feedback
R85	18Ω	2		BW-2-18	Filter-See Note 8
R86	330Ω	2	TRC331-7	BW-2-330	Focus Coil Shunt-See Note 9
R87A	1125Ω	9.8	TRP17DA		Filter-Wire Wound
B	8200Ω	2.3			Voltage Divider-Wire Wound
C	650Ω	10.1			HV Rect. Filament-See Note 7
R88	150Ω	½	TRC221-1	BW-1-220	HV Filter
R89	33Ω	1	TRC330-5	BW-1-33	Voltage Divider
R90	82Ω	2	TRC820-5	BW-2-82	Bias Network
					Bias Network-Wire Wound

Note 1. Some models use a 27KΩ resistor in this application.
Note 2. Some models use a 1 Meg. resistor in this application.
Note 3. Model TV307 uses a 100KΩ resistor in this application.
Note 4. Some models use a 220Ω resistor in this application.
Note 5. Some models use a 10 Meg. resistor in this application.
Note 6. Model TV307 uses two 33KΩ, 2 watt resistors in parallel to obtain required resistance and wattage.
Note 7. Model TV307 uses a 5.1Ω resistor in this application.
Note 8. Not used in all models.
Note 9. Some models use a 680Ω, 2 watt resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: TELE-TONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC ② 2.1A	720VCT ③ 80MADC	5VAC ③ 3A	6.3VAC ④ 1.8A SEC. 4 6.3VAC ④ 7A	TTR188-D	P-8158 ⑤ P-5014 ⑤	P-3067	TP-360

④ Mount on chassis and use for SEC. #3
⑤ Drill new mounting holes.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: TELE-TONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	145Ω	135Ω	TTR181-2-D	A-8111	A-3000	TSO-1 ③	Vert. Block Osc. Trans.
T3A	425Ω	20Ω	TTR200-D ②		BVO-6		Hor. Output Trans.
	Tap ③	Tap ④					
	41Ω	8.5Ω, 14Ω					
B			TTR190-D ③				Hor. Output Trans.
T4	1100Ω	10Ω	TTR185-D	A-8112	A-3036	TSO-5 ④	Vert. Output Trans.
T5A	142		TTR201-D ③	DY-7	MD-3		Hor. Deflection Coil
B	62Ω						Vert. Deflection Coil
C			TTR191-D ③				Deflection Yoke
T6	480Ω		TLF522-D		MF-2		Focus Coil

② Used in TV-306.
③ Used in TV-307.
④ Drill one new mounting hole.

TELE-TONE MODELS TV-306, TV-307 (Ch. TY, TZ)

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TELE-TONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T7	5000Ω	4.2Ω	390Ω	.4Ω	TTR-179-D	A-3877	A-2930	RO-8 ④	④ Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	TELE-TONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	4.2Ω	TSP464 ②		5A15	② Used in TV-306
B	PM		TSP465 ③			③ Used in TV-307
	CONE DIA.	V. C. DIA.				
SP2A	4 13/16"	9/16"				
B	9 1/2"					

FILTER CHOKE

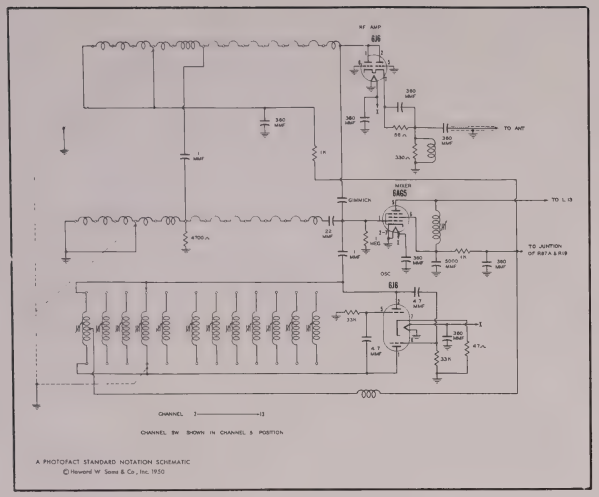
ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ↺)	TELE-TONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.250ADC	37Ω	1 Henry	TTR106-2D	C-2326 ④	C-2996 ④	TR-3300④	④ Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	TELE-TONE PART No.	MEISSNER PART No.	
L2	RF Choke	3.3Ω				
L3	RF Coil	0Ω		TLF143-D		
L4	Mixer Grid	0Ω		TLF143-D		
L5	RF Choke	1.6Ω				
L6	Osc. Coil	0Ω				Channel 2
L7	Osc. Coil	0Ω		TLF120-3D		Channel 4
L8	Osc. Coil	0Ω		TLF120-5D		Channel 6
L9	Osc. Coil	0Ω		TLF120-7D		Channel 8
L10	Osc. Coil	0Ω		TLF120-9D		Channel 10
L11	Osc. Coil	0Ω		TLF120-10D		Channel 12
L12	Osc. Coil	0Ω		TLF120-10D		Channel 13
L13	1st Video IF	.9Ω		TLF551-D		
L14	2nd Video IF	.1Ω		TLF517-D		
L15	RF Choke	1.8Ω		TLF146-D		Wound on 1.5 Megohm resistor
L16	RF Choke	1.8Ω		TLF146-D		Wound on 1.5 Megohm resistor
L17	3rd Video IF	.1Ω		TLF148-D		
L18	RF Choke	1.8Ω		TLF146-D		Wound on 1.5 Megohm resistor
L19	4th Video IF	.1Ω		TLF149-D		
L20	Peaking	2.8Ω				Black dot 36 microhenries
L21	Peaking	5.5Ω		TLF502		Blue dot Wound on 22KΩ resistor
L22	Peaking	4.9Ω		TLF519-D	19-1920	Red dot 100 microhenries
L23	Peaking	2.8Ω		TLF503		Green dot
L24	Peaking	5.5Ω		TLF502		Blue dot Wound on 22KΩ resistor
L25	4.5MC Trap	1.1Ω		TLF525-D		
L26	Sound IF	1.5Ω		TLF114-D		
L27	Ratio Det. Trans.	6Ω	1.7Ω	TLF531-D		TLF142-D may be used in some models.
L28	Horiz. Osc.	130Ω		TTR157		Tap at 36Ω
L29	Horiz. Lin.	36Ω		TLF506		
L30A	Horiz. Size	28Ω		TLF553-D		Model TV-306
B	Horiz. Size			TLF505-D		Model TV-307
L31	Sound Trap			TTR158		Not used in all models.

MISCELLANEOUS

ITEM No.	PART NAME	TELE-TONE PART No.	NOTES
M1	RF Tuner		
M2	Fuse		
M3A	Ion Trap	TLF-554	Model TV-306
B	Ion Trap	TLF546-D	Model TV-307
M4	Switch	TSW201	Width control
	Trimmer	TAS501-D	Horiz. drive 40-370MMF }
	Trimmer		Horiz. Freq. 40-370MMF } 3 sections
	Trimmer		Horiz. range 10-106MMF }
	Antenna	TBP539-D	Built-in
	Safety Glass	TGL117-D	Model TV-306
	Safety Glass	TGL110-D	Model TV-307
	Cabinet	TCB273-D	Model TV-306
	Cabinet	TCB274-DW	Walnut Model TV-307
	Cabinet	TCB274-DM	Mahogany Model TV-307
	Knob	TKN114-D	Outside
	Knob	TKN115-D	Inside
	Knob	TKN116-D	Dual
	Knob	TKN117-D	Indicator



ALTERNATE 12 CHANNEL TUNER

DISASSEMBLY INSTRUCTIONS

1. Remove seven push-on type control knobs from front of cabinet.
2. Remove four 1/4" hex head screws holding rear cover in place. Remove rear cover.
3. Disconnect antenna leads from rear of cabinet.
4. Disconnect two push-on type speaker leads from terminal strip. Remove speaker.
5. Remove four 3/8" hex head nuts holding chassis in cabinet. Remove chassis.

FINE TUNING DRIVE CORD STRINGING

ZENITH
MODEL G723 (Ch. 7G04)

ZENITH
MODEL G723 (Ch. 7G04)

ZENITH MODEL G723

TRADE NAME	Zenith, Model G723 (Ch. 7G04)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna		
TUBES (SEVEN)	Types 12BA6 FM RF Amp., 12BE6 Converter, 12BA6 1st IF Amp., 12BA6 FM 2nd IF Amp., 12AU6 Limiter, 19T8 Disc.-DET-AVC-AF, 35B5 Power Output		
POWER SUPPLY	110-120 Volts AC-DC	RATING	.31 Amp. at 117 Volts AC
TUNING RANGE-BROADCAST	540-1620KC	FREQ. MOD.	88-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

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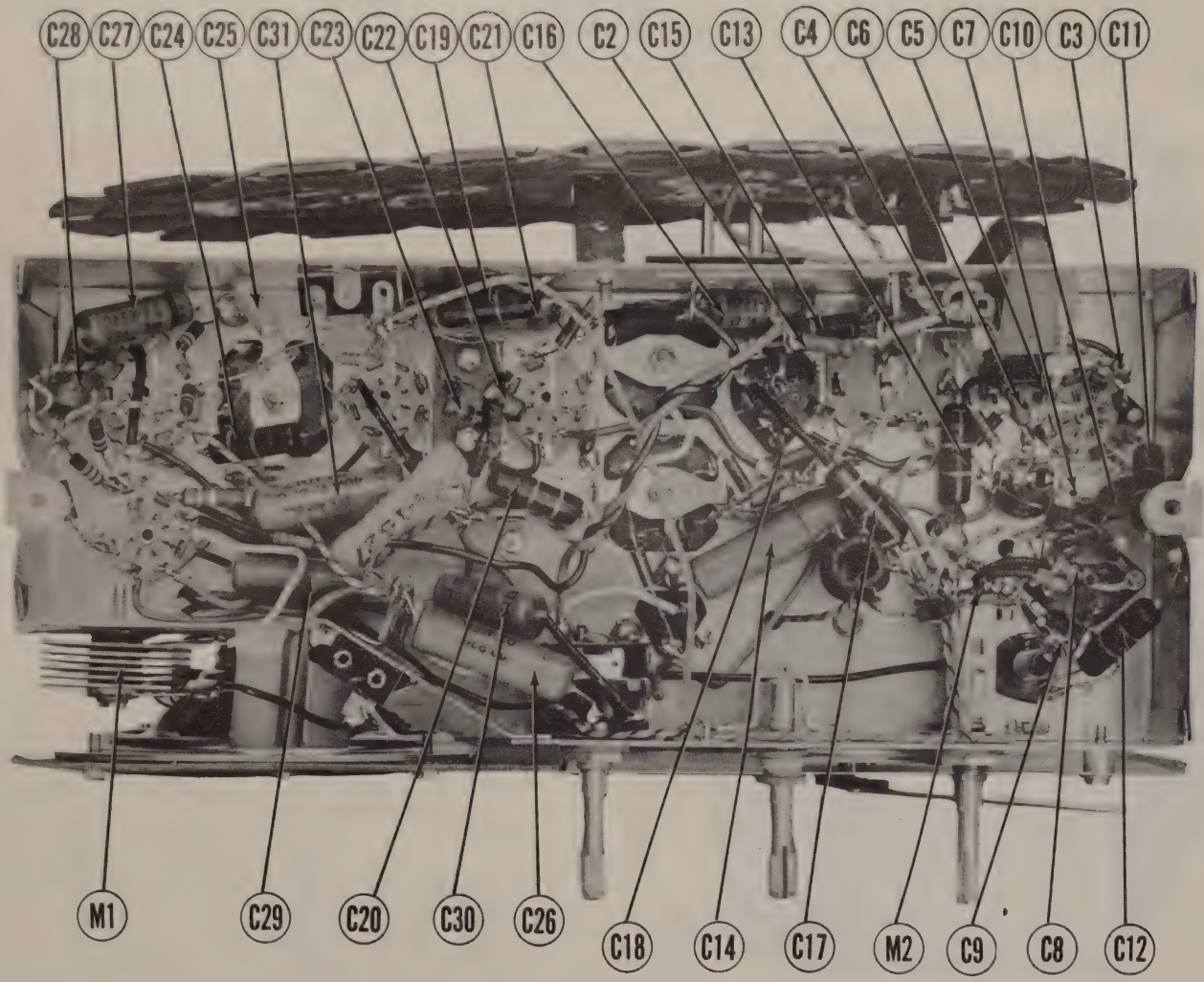
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M1
C29
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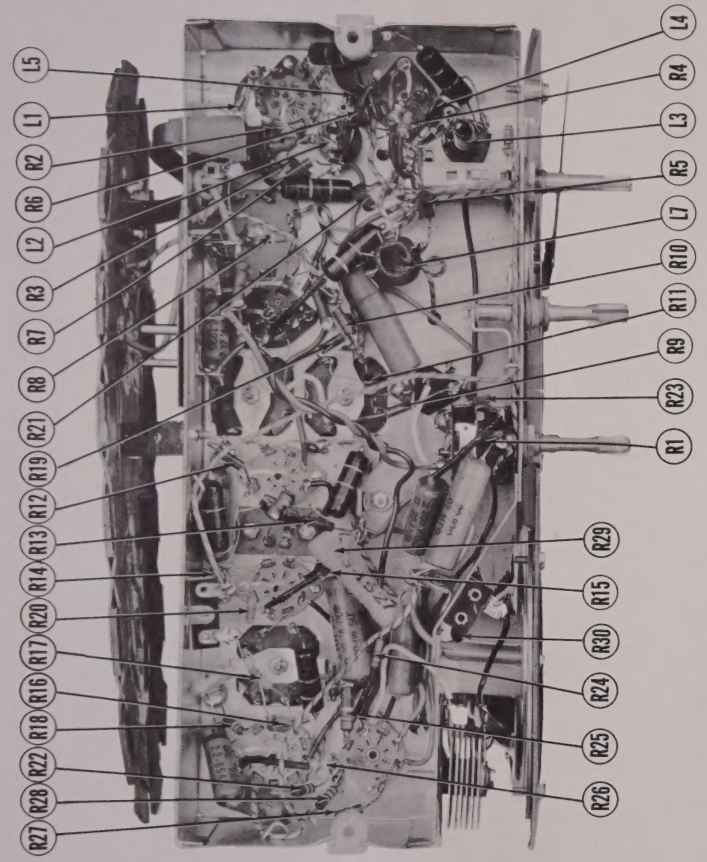
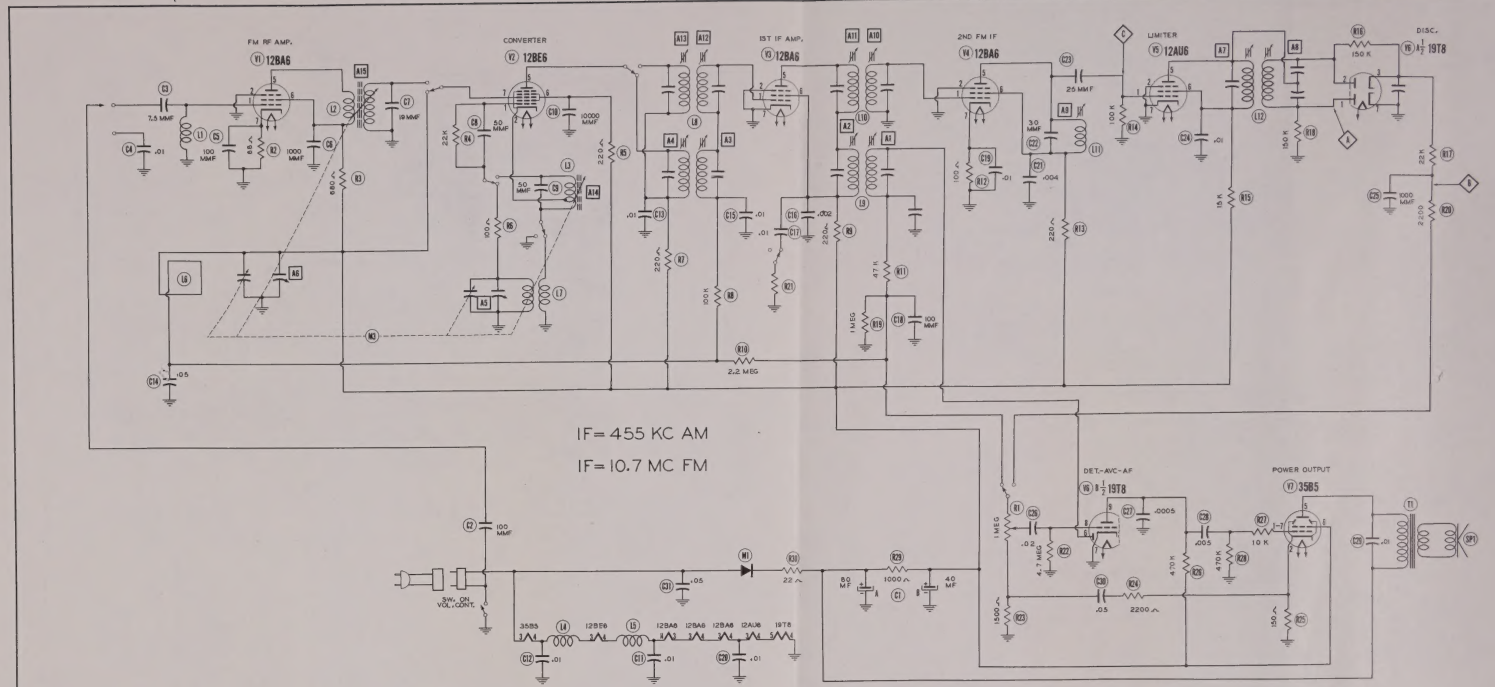
C26
C18
C14
C17
M2
C9
C8
C12





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
†	V1	12BA6	0V.	0V.	56VAC	69VAC	90VDC	90VDC	.7VDC	
†	V2	12BE6	0-4VDC	0V.	82VAC	69VAC	85VDC	85VDC	0V.	
#	V2	12BE6	0-5.8VDC	0V.	82VAC	69VAC	85VDC	85VDC	-.4VDC	
†	V3	12BA6	-.5VDC	0V.	56VAC	45VAC	85VDC	85VDC	0V.	
#	V3	12BA6	-.5VDC	0V.	56VAC	45VAC	85VDC	85VDC	0V.	
†	V4	12BA6	0V.	0V.	45VAC	32VAC	85VDC	85VDC	.1VDC	
†	V5	12AU6	0V.	0V.	32VAC	.19VAC	50VDC	50VDC	0V.	
†	V6	19T8	-.6VDC	-.6VDC	-.1VDC	0V.	.19VAC	-.1VDC	0V.	-.6VDC	35VDC
#	V6	19T8	-.6VDC	-.6VDC	-.1VDC	0V.	.19VAC	-.1VDC	0V.	-.6VDC	35VDC
#	V7	35B5	0V.	6.6VDC	11VAC	82VAC	130VDC	87VDC	0V.		

† TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
†	V1	12BA6	0Ω	0Ω	68Ω	79Ω	11.7KΩ	11.7KΩ	68Ω	
†	V2	12BE6	22KΩ	0Ω	90Ω	80Ω	11.2KΩ	11.2KΩ	0Ω	
#	V2	12BE6	22KΩ	.5Ω	90Ω	80Ω	11.2KΩ	11.2KΩ	2.7 Meg.	
†	V3	12BA6	2.3 Meg.	0Ω	68Ω	54Ω	11.2KΩ	11.2KΩ	0Ω	
#	V3	12BA6	2.8 Meg.	0Ω	68Ω	54Ω	11.2KΩ	11.2KΩ	0Ω	
†	V4	12BA6	4Ω	0Ω	54Ω	40Ω	11.2KΩ	11.2KΩ	100Ω	
†	V5	12AU6	100KΩ	0Ω	60Ω	26Ω	115KΩ	115KΩ	0Ω	
†	V6	19T8	130KΩ	130KΩ	220KΩ	0Ω	26Ω	1 Meg.	0Ω	4.7 Meg.	1470KΩ
#	V6	19T8	150KΩ	150KΩ	300KΩ	0Ω	26Ω	550KΩ	0Ω	4.7 Meg.	1470KΩ
#	V7	35B5	480KΩ	150Ω	125Ω	8Ω	1280Ω	1100Ω	480KΩ		

† TAKEN IN "FM" POSITION.
# TAKEN IN "AM" POSITION.
† MEASURED FROM OUTPUT OF M1.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set pointer to low frequency end of dial scale line.

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and chassis.

AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD in High side (Grid) of 6BA6 (V2). Low side to chassis.	High side to antenna terminal. Remove lead to "G". Low side to chassis.	1600KC (400 % Mod.)	AM (CCW)	Set pointer to fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If used, reduce dummy antenna to reduce hum modulation.
2.	Loop	"	"	"	Adjust for max. output	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	Loop	"	1400KC	"	"	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	DIAL SETTING	VTVM CONNECT TO	ADJUST	REMARKS
4.	.01MFD in High side (Grid) of 12AE6 (V3). Low side to chassis.	High side to pin (1) (Unmod.) Low side to chassis.	10.7MC	FM (CW)	Set pointer to fully open	DC Probe ⊕ to Pointer ⊖ to Common to chassis.	A7	Adjust for maximum deflection.
5.	.01MFD	"	"	"	"	DC Probe ⊕ to Pointer ⊖ to Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	.01MFD in High side (Grid) of 12AT7 (V4). Low side to chassis.	High side to pin (7) (Unmod.) Low side to chassis.	"	"	"	DC Probe ⊕ to Pin (1) ⊖ to Common to chassis.	A9, A10, A13	Adjust for maximum deflection. Continue with step 7.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 400 modulation and 400KC sweep. Use 120 v sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO SETTING	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD in High side (Grid) of 12AT7 (V4). Low side to chassis.	High side to pin (1) Low side to chassis.	10.7MC (Sweep)	FM (CW)	Tuning gang fully open	Vert. Amp. to Pointer ⊕ Low side to Common to chassis.	A9, A10, A11	Adjust for maximum amplitude and symmetry as per figure 1.
8.	.01MFD	High side to pin (7) Low side to chassis.	"	"	"	Vert. Amp. to Pointer ⊕ Low side to chassis.	A12, A13	"
9.	.01MFD	"	"	"	"	"	A7, A8	Adjust A8 to place 10.7MC at center of crossover lines as per figure 2. Adjust A7 for symmetry and straightness of crossover lines.

CONNECT VTVM FOR AVC ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	DIAL SETTING	VTVM CONNECT TO	ADJUST	REMARKS
10.	270Ω carbon res.	High side (thru 270Ω res.) to antenna terminal. Remove lead to "G". Remove tube antenna.	1600KC	AM (CW)	Set pointer to fully open	DC Probe ⊕ to Pin (1) ⊖ to Common to chassis.	A14, A15	Adjust for maximum deflection.

FIG. 1

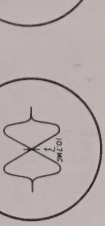
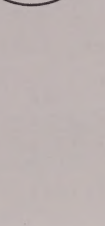


FIG. 2



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	FM RF Amp.	12BA6	12BA6	7BK	
V2	Converter	12BE6	12BE6	7CH	
V3	1st IF Amp.	12BA6	12BA6	7BK	
V4	2nd FM IF Amp.	12BA6	12BA6	7BK	
V5	Limiter	12AU6	12AU6	7BK	
V6	Disc. -DET. -AVC-AF	19T8	19T8	9E	
V7	Power Output	35B5	35B5	7B2	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	150	22-1757	AFH88ED		UPE6415		EL-340	■ Filter
B	40	150							▲ Filter
C2	100		22-1669	GP100M	D6-101	5W5T1	GPK-100	1FM-31	Line Ant. Coupling
C3	7.5		22-1652	GP10K	D6-100	5W5Q1	GPK-10	MS-41	Ant. Coupling
C4	.01	200	22-3	P488-01	D6-103	PTE4S1	811-01	TM-11	Ant. Isolation
C5	100		22-1669	GP100M	D6-101	5W5T1	GPK-100	1FM-31	FM RF Cath. Byp.
C6	1000		22-1676	GP1000M	D6-102	1W5D1	GP2L-001	1FM-21	FM RF Decoup.
C7	19		22-1688	CN19ZN080					Fixed Trimmer
C8	50		22-1492	GP50M	D6-500	5W5Q5	GPK-50	1FM-45	Osc. Grid Cap.
C9	50		22-1511	CN50ZN080					Fixed Trimmer
C10	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	Osc. Anode Bypass
C11	.01	400	22-3	P488-01	D6-103	PTE4S1	811-01	TM-11	FM RF Fil. Byp.
C12	.01	400	22-3	P488-01	D6-103	PTE4S1	811-01	TM-11	Filament Bypass
C13	.01	400	22-3	P488-01	D6-103	PTE4S1	811-01	TM-11	Conv. Plate Decoup.
C14	.05	200	22-529	P288-05		PTE4S5		TM-15	AVC Filter
C15	.01	400	22-3	P488-01	D6-103	PTE4S1	811-01	TM-11	AVC Filter
C16	.002	600	22-1220	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	1st IF Screen
C17	.01	400	22-3	P488-01	D6-103	PTE4S1	811-01	TM-11	1st IF Screen
C18	100		22-1669	GP100M	D6-101	5W5T1	GPK-100	1FM-31	Diode RF Filter
C19	.01	400	22-3	P488-01	D6-103	PTE4S1	811-01	TM-11	2nd IF Cathode
C20	.01	400	22-3	P488-01	D6-103	PTE4S1	811-01	TM-11	2nd IF Fil.
C21	.004	600	22-448	P688-004	D6-472	PTE6D4	GP2M-004	TM-24	2nd IF Dec.
C22	30		22-1768	SI30KNP0	D2-30	5R5Q3	NP0K-30	MS-43	Fixed Trimmer
C23	25		22-1507	GP25K	D6-250	5W5Q25	GPK-25	MS-425	IF Coupling
C24	.01	400	22-3	P488-01	D6-103	PTE4S1	811-01	TM-11	Limiter Dec.
C25	1000	500	22-887	1468-001	D6-102	1W5D1	GP2L-001	1FM-21	De-emphasis
C26	.02	600	22-830	P688-02		PTE6S2		TM-12	Audio Coupling
C27	.0005	600	22-854	1468-0005	D6-501	5W5T5	GP2K-500	TC-35	AF Amp. Plate
C28	.005	600	22-229	P668-005	D6-502	PTE6D5	811-005	TM-25	Audio Coupling
C29	.01	400	22-1126	P488-01	D6-103	PTE4S1	811-01	TM-11	Output Plate
C30	.05	200	22-1158	P288-05		PTE4S5		TM-15	AF Feedback
C31	.05	400	22-1017	P488-05		PTE4S5		TM-15	Line Filter

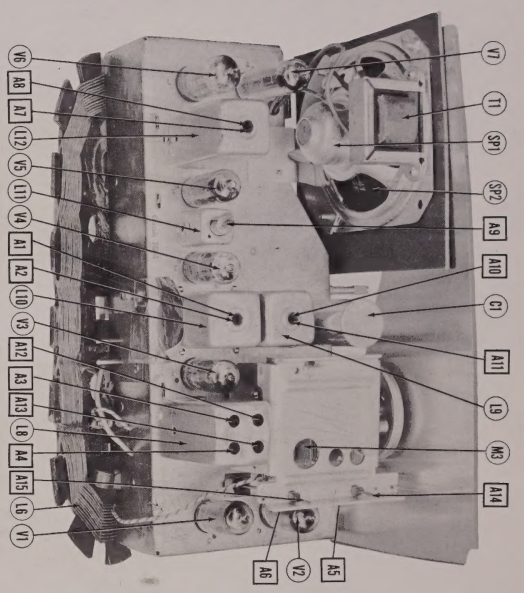
CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	63-2113	*		AN-68	Volume control and switch
B	Shaft			Not Req.		AK-4	Attach to R1A per instructions
C	Switch			76-1		K-155	Attach to R1A per instructions

* Use any "Q" control with base element removed. Replace with a B17-137 element.

SET 104
FOLDER 13

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	IRC PART No.	IDENTIFICATION CODES
R2	68Ω	½	63-1737	BW-½-68	FM RF Amp. Cathode
R3	680Ω	½	63-1779	BTS-680	FM RF Amp. Decoupling
R4	22KΩ	½	63-1842	BTS-22K	Conv. Grid
R5	220Ω	½	63-1758	BW-½-220	Conv. Screen
R6	100Ω	½	63-1744		Parasitic Suppressor
R7	220Ω	½	63-1758	BW-½-220	Conv. Decoupling
R8	100KΩ	½	63-1870	BTS-100K	AVC Network
R9	220Ω	½	63-1758	BW-½-220	1st IF Amp. Plate
R10	2.2 Meg.	½	63-1926	BTS-2.2 Meg.	AVC Network
R11	47KΩ	½	63-1856	BTS-47K	Diode Filter
R12	100Ω	½	63-1744	BW-½-100	2nd IF Amp. Cathode
R13	220Ω	½	63-1758	BW-½-220	2nd IF Amp. Decoupling
R14	100KΩ	½	63-1870	BTS-100K	Limiter Grid
R15	15KΩ	½	63-1835	BTS-15K	Limiter Decoupling
R16	150KΩ	½	63-1876	BTS-150K	Disc. Diode Load-Wire Wound
R17	22KΩ	½	63-1842	BTS-22K	De-emphasis
R18	150KΩ	½	63-1876	BTS-150K	Disc. Diode Load
R19	1 Meg.	½	63-1912	BTS-1 Meg.	Diode Load
R20	2200Ω	½	63-1800	BTS-2200	De-emphasis
R21	1Ω	½	63-1223	BW-½-1	1st IF Amp. Decoupling-Wire Wound
R22	4.7 Meg.	½	63-1940	BTS-4.7 Meg.	AF Amp. Grid
R23	1500Ω	½	63-1793	BTS-1500	Tone Compensation
R24	2200Ω	½	63-1800	BTS-2200	Tone Compensation
R25	150Ω	½	63-686	BW-½-150	Output Cathode-Wire Wound
R26	470KΩ	½	63-1898	BTS-470K	AF Amp. Plate
R27	10KΩ	½	63-1828	BTS-10K	Output Grid
R28	470KΩ	½	63-1898	BTS-470K	Output Grid
R29	1000Ω	3	63-1527	AB-1000	Filter-Wire Wound
R30	22Ω	1	63-1450		Surge Limiter-Wire Wound

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	3600Ω	3.5Ω	260Ω	.5Ω	206-667	A-3876	A-2928	RO-301	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-113 ①		
SP1	PM	3.5Ω	49-667	MOD. P4-X	4A07 ①	① Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	3 7/8"	9/16"				

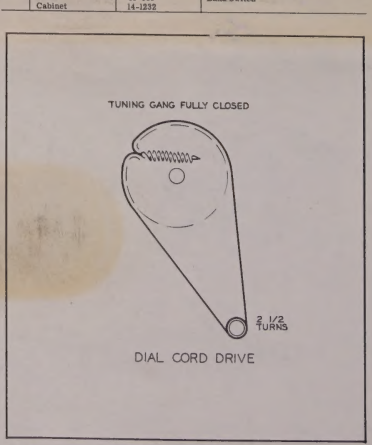
R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	MEISSNER PART No.
L1	FM Ant.	0Ω	0Ω	S-15690	
L2	FM RF	0Ω		S-13871	
L3	FM Osc.	0Ω		S-14695	
L4	Fil. Choke	1Ω		S-13997	
L5	Fil. Choke	1Ω		S-13997	
L6	Loop Ant.	1.5Ω		S-14957	
L7	AM Osc.	.5Ω	5Ω	S-14481	14-1060
L8	1st AM-FM IF	19.4Ω	19.4Ω	S-14521	
L9	2nd AM IF	30.5Ω	30.5Ω	95-1102	16-6660
L10	2nd FM IF	.4Ω	.4Ω	95-1150	
L11	3rd FM IF	1Ω		S-14509	
L12	Disc. Trans.	.3Ω	.3Ω	95-1153	

PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA SYLVANIA PART No.		NOTES
M1	.095A	212-7	ND-5		

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M2	Switch	85-481	AM-FM
M3	2 Gang Var. Cap.	22-1742	(16-464MMF, 34-264MMF)
	Dial Scale	26-443	
	Dial Pointer	59-243	
	Knob	46-860	Tuning or Volume
	Knob	46-859	Band Switch
	Cabinet	14-1232